Red Cliff Band of Lake Superior Chippewa

Comprehensive Tribal Transportation Safety Action Plan

GOOD ROADWAYS PRESERVE

OUR LIVES & OUR LANDS

Table of Contents

Acknowledgments

Project Team

The Red Cliff Band of Lake Superior Chippewa Indians (Red Cliff Band) is committed to improving transportation safety to reduce the risk of death and serious injury that result from incidents on and along its transportation systems. The purpose of this document is to provide a list of recommendations and actions, both short and long-term, to aid the tribe in their commitment to achieving zero serious injury and fatal crashes on their roadways by 2045.

The Comprehensive Tribal Transportation Safety Action Plan was developed with input from several regional and local safety partners. Special attention was given to the safety concerns of the tribal community specifically for vulnerable users that utilize walking and biking as their principal transportation method. Enhancing the viability and safety of multi-modal transportation for all members of the community was a key priority. This plan was formulated using both quantitative (crash data) and qualitative (community input) data for the purpose of prioritizing primary concerns and recommending solutions.

Widseth, in partnership with Toole Design and Terra Soma, would like to thank members of the Red Cliff community and its local stakeholders whose participation advanced our comprehensive understanding of the needs and goals detailed in this comprehensive plan for road and pedestrian safety.

Chapter 1

Introduction

Goal Setting

SS4A Plan Process

Leadership Commitment

Goal Setting

The Red Cliff Reservation or Gaa Miskwaabikaang (The place of lots of red cliffs) faces unique challenges related to traffic and pedestrian safety. The reservation provides treaty-protected access to the Apostle Islands National Lakeshore and the Red Cliff Band's vast forests and lands along the Lake Superior shoreline. It is bisected by the Wisconsin Lake Superior Scenic Byway and supports significant traffic volumes due to the area's extensive tourism industry. The existing transportation system accommodates a large number of unfamiliar travelers each year while also supporting the tribal community in their daily travels. These roads provide critical access to emergency services, schools, traditional, and cultural activities, and critical community services such as healthcare, eldercare, and family support services.

Plan Vision

No one is seriously injured or killed while using our transportation system

Plan Goals

Achieve zero roadway fatal & serious injury crashes by 2045

Reduce serious & fatal crashes involving pedestrians and cyclists by 75% by 2035

Reduce intersection and lane departure crashes by 75% by 2035

SS4A Plan Process

The Infrastructure Investment and Jobs Act (IIJA) established the Safe Streets and Roads for All (SS4A) discretionary program with $5 billion in appropriated funds over 5 years, 2022-2026. The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries. Almost $2 billion is still available for future funding rounds. (transportation.gov/grants/SS4A). The Safe Streets and Roads for All program is comprised of eight (8) Action Plan Components:

1. **Leadership Commitment & Goal Setting**
2. **Planning Structure**
3. **Safety Analysis**
4. **Engagement & Collaboration**
5. **Equity Considerations**
6. **Policy & Process Changes**
7. **Strategy & Project Selections**
8. **Progress & Transparency**

Leadership Commitment - Resolution for Adoption

Red Cliff Band of Lake Superior Chippewa Indians

RESOLUTION NO: 5-20-25C

PERTAINING TO THE ADOPTION OF THE RED CLIFF TRIBAL TRANSPORTATION SAFETY ACTION PLAN.

WHEREAS: the Red Cliff Band of Lake Superior Chippewa Indians is a federally recognized Indian Tribe, organized under a constitution adopted April 18, 1936, and approved June 1, 1936 pursuant to Sec. 16 of the Indian Reorganization Act, said Constitution having been duly amended by the Band in accordance with the provisions of applicable federal law;

WHEREAS: The Red Cliff Tribal Council is the governing body of the Red Cliff Band of Lake Superior Chippewa; is a sovereign government; and,

WHEREAS: The Red Cliff Tribal Council as the governing body of the Red Cliff Band of Lake Superior Chippewa, seeks to address the issues that impact infrastructure and specifically transportation within and for the Red Cliff Community; and,

WHEREAS: The Red Cliff Tribal Council has sought community input on transportation issues and priorities in accordance with 25 CFR 170.413 and specifically through the establishment of Tribal Council priorities in March 2009, September 2023, and further in transportation public meetings; and,

WHEREAS: The U.S Department of Transportation has awarded the Red Cliff Band Safe Streets For All funding in the amount of $105,000 for the development of a Red Cliff Tribal Transportation Safety Action Plan; and,

WHEREAS: The Red Cliff Transportation Department has developed the draft Red Cliff Tribal Transportation Safety Action Plan.

NOW THEREFORE BE IT RESOLVED: The Red Cliff Tribal Council hereby supports and adopts the draft plan as the Official Red Cliff Tribal Transportation Safety Action Plan; and,

FINALLY BE IT RESOLVED: That the Red Cliff Tribal Council authorizes submission to Federal, State and Local agencies all documents necessary to secure funding to implement plan elements and authorizes the Chairperson or designee to duly prepare and negotiate such documents, contracts, modifications and/or amendments.

CERTIFICATION

I, the undersigned Secretary of the Red Cliff Tribal Council, do hereby certify that the council is composed of nine members (9), of whom 9 were present at a meeting duly called, convened and held this 20th day of May, 2025, and that the foregoing resolution was adopted at said meeting by an affirmative vote of 8 members for, 0 against, and 0 members abstaining for the vote, and that said resolution has not been rescinded or amended in anyway.

Vincent Bresette, Secretary
Red Cliff Tribal Council

Chapter 2
Process & Public Outreach

Referenced Documents

Public Outreach

Red Cliff Road Safety Summit

Project Timeline

Equity Considerations

Background

Use of Equity Analysis in this Plan

This Comprehensive Tribal Transportation Safety Action Plan was developed in coordination with the Red Cliff Tribal Council, regional representatives from County & State transportation agencies, local businesses and organizations, community members, and other stakeholders. The research process for developing the plan began in September of 2024 under the direction of the Red Cliff Transportation Department and a dedicated project team consisting of members from the Red Cliff Road Safety Team and staff from Widseth, Toole Design, and Terra Soma.

Referenced Documents

The first step in drafting the Comprehensive Tribal Transportation Safety Action Plan was to identify the immediate concerns of the Red Cliff community regarding vehicular and pedestrian safety. Several documents previously completed by Red Cliff's Transportation Department were reviewed to help gain critical context in the formation of this plan. These include (but are not limited to) the following:

- 2011 Red Cliff Tribal Road Safety Plan
- 2016 Red Cliff Long Range Transportation Safety Plan
- 2019 Red Cliff State Highway 13 by WisDOT Speed Investigation
- 2021 Red Cliff Road Safety Plan
- 2023 Red Cliff Commercial Zone Master Plan

Public Outreach

This plan was developed with the use of community and stakeholder input, primarily gathered during the 2024 Road Safety Summit held at Red Cliff's Legendary Waters Resort & Casino. At the summit, the project team presented crash analysis data, discussed previous road and pedestrian safety efforts, and hosted meetings with local representatives and stakeholders to identify areas of shared concern. The project team participated in several site visits and safety walking audits to experience these areas first-hand. Attendees participating in the Road Safety Summit included representatives from local businesses and community support programs, and leadership from the following organizations:

Represented Organizations

- Red Cliff Tribal Council
- WisDOT
- Red Cliff Public Works Division
- Red Cliff Planning Department
- Miskwaabekong Transit
- Bayfield County Highway Department
- Bay Area Rural Transit
- Emergency Services Division
- Legendary Waters Resort & Casino
- Bayfield School

Red Cliff Road Safety Summit

The project team organized and facilitated a 3-day Road Safety Summit that welcomed the Tribal community along with partners from multiple local agencies and organizations. The summit was held October 28th-30th, 2024 at Legendary Waters Resort & Casino on the Red Cliff Reservation. The first day of the summit consisted of a round table discussions with members of local government agencies, followed by a safety walking audit of areas of concern along State Highway 13.

On the second day, members of the project team visited locations throughout the reservation in the morning to observe and identify existing road safety conditions, document examples of proposed improvements, and discuss opportunities and priorities. During the afternoon and evening hours of the second day, members of the community engaged with the project team to convey their concerns and requests for improvements to vehicular and pedestrian safety. They provided invaluable insights into their lived experiences that are commonly underrepresented in transportation incident data.

On the last day of the summit, members of the project team regrouped to review the information gathered during the event, discussed their experience, shared what they had learned, and prepared for the next steps in the process of creating the Comprehensive Tribal Transportation Safety Action Plan.

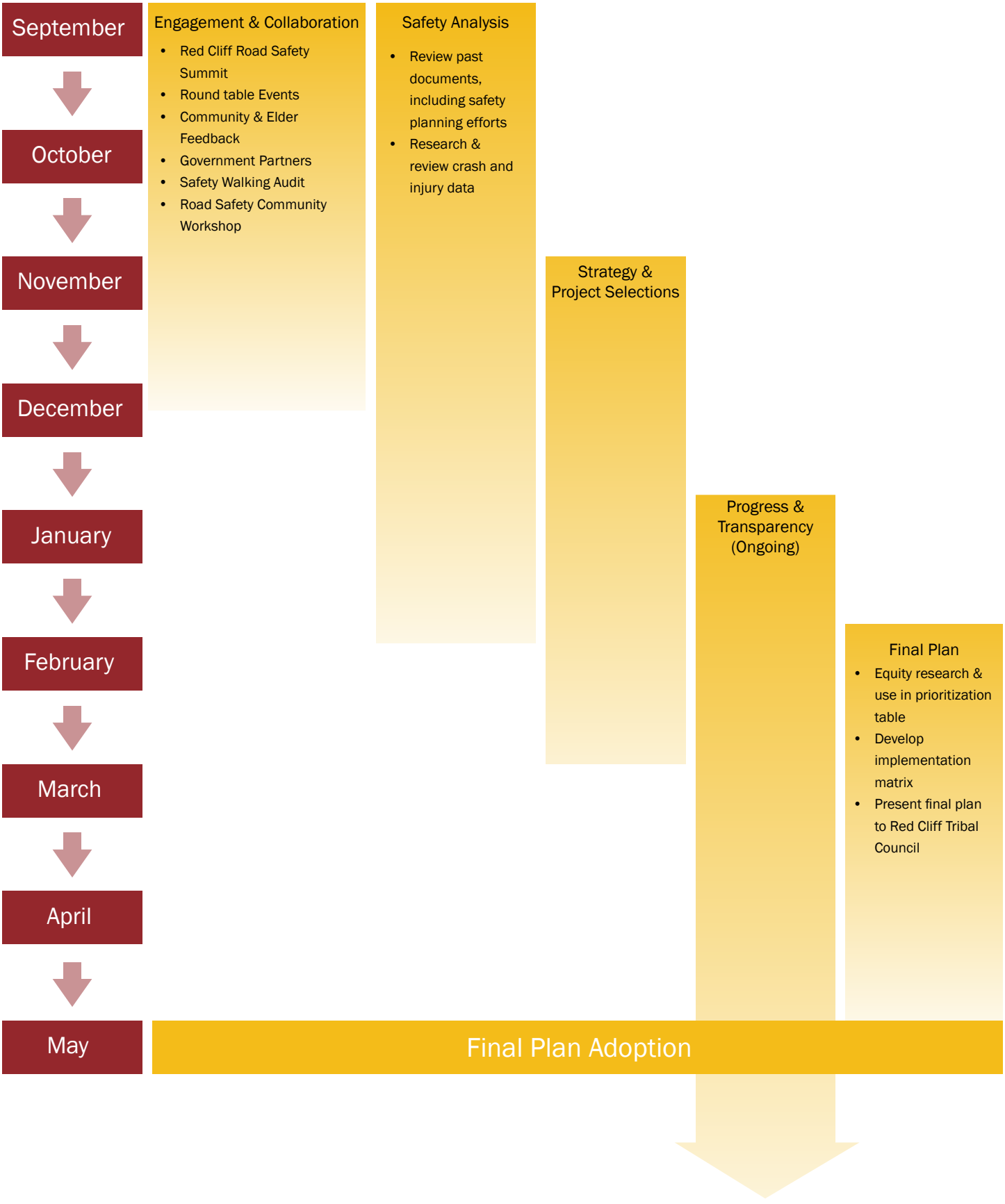
The 2024 Road Safety Summit provided the Red Cliff community with an opportunity to share ideas with the consultant team and provide critical insights and perspectives relating to existing road and pedestrian safety conditions in Red Cliff, and the need for significant improvements. Non-motorized transportation is common in Red Cliff and provides many tribal members with access to work, education, healthcare, shopping, and other essential community services.

Community Engagement Notes

- Unified community support for safe pedestrian infrastructure along Blueberry Road and State Highway 13
- Winter traction concerns on hilly roads and intersections
- Early Childhood Center - Intersection of Tiny Tot Drive and Blueberry Road
- Children at play along tribal thoroughfares
- and near residential areas.

Figure 1 |*Safety Summit Community Input Map (Widseth)*

Project Timeline (2024-2025)



Equity Considerations

During development of this plan, equity was prioritized by engaging directly with the Red Cliff community to understand the unique transportation safety concerns of its members. Considerations for high-risk roadways, pedestrian and non-motorized safety, and access to essential services on and near important community destinations all played vital roles in these discussions. This approach included collaborating with tribal leadership, incorporating community-driven input, and ensuring culturally relevant engagement methods. Additionally, the project team acknowledged historical underinvestment in tribal infrastructure and worked to align safety improvements with the Red Cliff's values. The final recommendations in this plan reflect these considerations, aiming for inclusive, data-driven, community-centered, and sustainable transportation safety solutions. See Appendix 2 for more information.

Background

Historically, funding, program, and policy structures have disproportionately challenged Black and Indigenous communities. This is largely because these communities have traditionally been systematically excluded from resources and, like most communities, often lack capacity to fund, manage, and maintain transportation, land development, and other related infrastructure and planning needs entirely on their own. Because of structural marginalization, more of the burdens of the transportation system have been placed on specific groups, such as BIPOC, low-income, people with disabilities, youth, elderly, and others. These burdens can include higher exposure to pollution, public health and climate impacts, higher concentrations of traffic crashes, service gaps, inadequate infrastructure, and divisive roadway construction. Further, these groups are more likely to have benefits of the system withheld because of the ongoing effects of past policies and investment patterns, which results in disparate transportation experiences and an inequitable transportation system.

In the 2010 census, 22% of people identifying as American Indian and Alaska Natives lived in reservations, trust lands, or tribal statistical areas (Norris, Vines, & Hoeffel, 2012). Nationally, motor vehicle crashes are the leading cause of unintentional injury for American Indians aged 1 to 44, and their motor vehicle death rate is higher than for any other ethnic or racial group in the United States. 79% of Red Cliff's residents identify as American Indian or Alaska Native. Because the indigenous community is drastically overrepresented in crash data, addressing and enhancing roadway safety is imperative where there are higher populations of Native American residents.

Owning a vehicle and traveling by car can be a stressor or impossible for many people in the community. Transit, walking, bicycling, scootering, and riding ATV's play a vital role in the Red Cliff transportation system by offering increased mobility, independence, and access to opportunity for people without vehicles. People should feel safe and empowered to travel using any mode to access employment, school, grocery shopping, and a variety of other activities to fully participate in society. Connected and accessible multi-modal infrastructure for every resident results in better access to daily physical activity and improved quality of life. The Safe Streets for All (SS4A) program provides more communities the ability to expand multi-modal service for growing communities, address mobility challenges of marginalized groups, and alleviate the burdens felt by communities across the transportation system. For Red Cliff, it is important to understand the inequities that the whole community is faced with as a tribal nation but also identify communities within Red Cliff that are further burdened by health and safety disparities, such as older adults, youth, and people with disabilities.

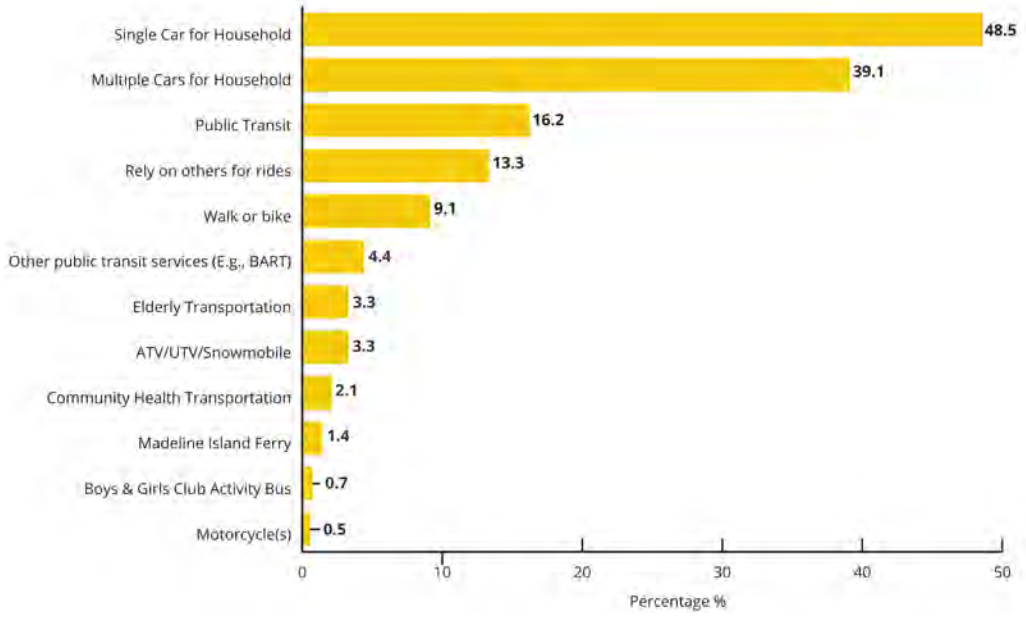


Figure 2| *Primary mode of transportation relied upon by household (Red Cliff 2023 Tribal Census Final Report)*

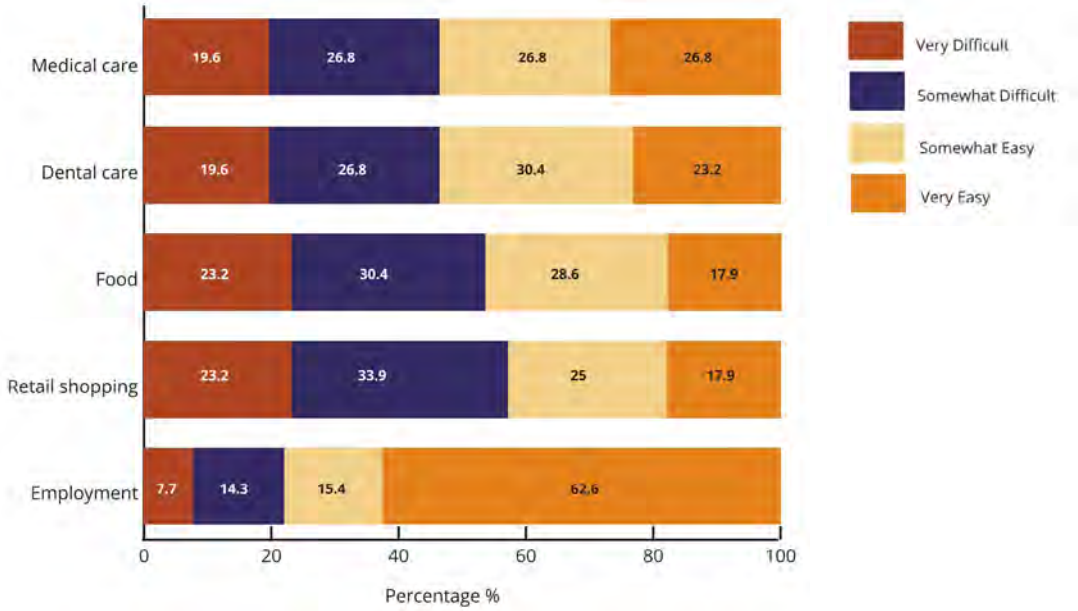


Figure 3| *For households without a vehicle, ranking of difficulty of access to goods, services, and opportunities (Red Cliff 2023 Tribal Census Final Report)*

Use of Equity Analysis in this Plan

Vulnerable Road Users

Providing safe, comfortable, and accessible streets and public spaces for all modes of travel and for people of all ages and abilities is fundamental to achieving a safe transportation system. Car ownership is a burden and/or inaccessible to many people. This means that we need to think outside of vehicular transportation when planning and designing the future transportation system. Multi-modal street design requires an understanding of all road users, their needs, and a goal of striking a balance that prioritizes safety, comfort, and accessibility. The transportation system must achieve this for pedestrians, transit riders, bicyclists, micro-mobility users, ATV users, and vehicle drivers alike.

Active Transportation

Active transportation investments enable safer and more comfortable experiences for people walking, biking, or taking transit. However, active transportation planning has also fueled disparities. Crash analyses have found that American Indian and Alaska Native (AIAN), Black, and Latinx Americans face higher rates of traffic injuries and fatalities, (Figure 1), particularly pronounced for pedestrians. Marginalized groups, such as youth, older adults, and people with disabilities, are more likely to rely on walking and bicycling for transportation and are less likely to have access to safe transportation options due to affordability and/or accessibility issues, leading to disproportionate safety impacts.

The trail and sidewalk networks in Red Cliff are limited to a segment of Highway 13 and hiking trails within Fog Bay Tribal National Park. This means that people who rely on walking and bicycling do not have a safe transportation option when traveling around the reservation to their regular destinations and face a barrier to safely traveling to Bayfield. Red Cliff has a large youth population; 29% of Red Cliff residents are under 18, compared to the 17% of the Bayfield County population. Youth that live in limited or no vehicle households, are not able to rely on rides or choose independent transportation, and do not currently have safe options to travel around the community. There is no sidewalk or trail network to connect them to their regular destinations, such as the library and educational programs, clubs, shorefront and outdoor recreation areas, cultural camps and campgrounds, etc., and have limited access to safe active transportation routes to the school or bus. In addition to safety, walking and bicycling also has benefits to physical health, mental wellbeing, and reduced exposure to pollution.

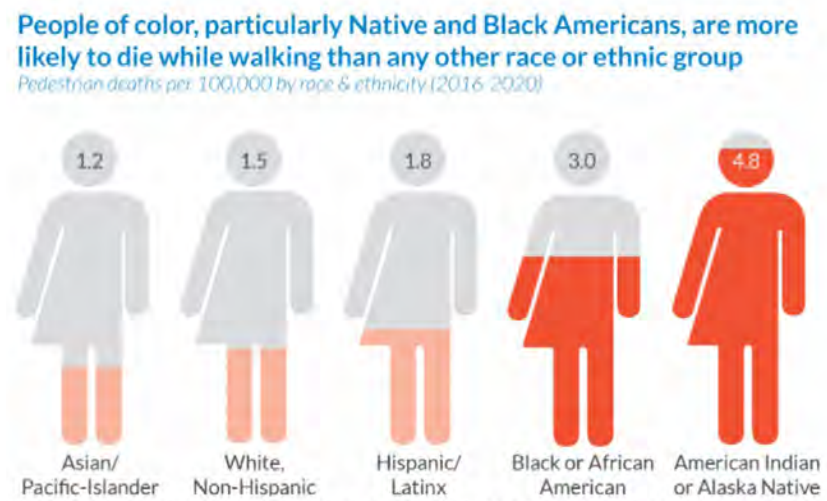


Figure 1: Pedestrian deaths in the United States by race and ethnicity (Fatality Analysis Reporting System (FARS) data, 2016-2020)

Figure 4| *Pedestrian deaths in the United States by race and ethnicity (Fatality Analysis Reporting System (FARS) data, 2016-2020)*

Chapter 3
Previous Research & Crash Data

Previous Safety Plans

Crash Data & Analysis

Census Data

Adopting the Safe System Approach

Safe System Roadway Design Hierarchy

Safe System Roadway Design Hierarchy Tiers

Summary of Key Findings

Study Limitations

Risk Factors Analysis

Vulnerable Users Project Map & Background

Previous Safety Plans

To gain context for this Safety Plan, past safety plans and other related documents were reviewed. Some key takeaways from the most recent two plans are listed below:

2021 Red Cliff Road Safety Plan

- Pedestrian and vehicle collision emphasis
- Majority of crashes were lane departure
- State Highway 13 clear zone enhancements, rumble strips/stripes
- Blueberry road of high concern
- Roundabout considered for State Highway 13/ Blueberry Road intersection
- Importance of proper maintenance plan & winter maintenance
- Emphasis areas:
  - Lane departure
  - Intersections
  - Transportation for vulnerable users
  - Mentions ATV/snowmobiles, suggests dedicated trails/paths would improve safety, reduce erosion, and increase service life

2019 Red Cliff State Highway 13 Speed Investigation

- Emphasis areas:
  - Intersections
  - Transportation for vulnerable users
  - Lane departures
  - Epoxy pavement safety markings
  - Improved vehicle and pedestrian access
  - Increase safety awareness

Items Considered from Previous Documents:

- Maintenance issues – most funds going toward road maintenance and deteriorating infrastructure
- Primary crash type: Lane departures
- Factors: Alcohol, traffic growth, unfamiliar drivers, complicated roadway geometry, poor driving conditions

Crash Data & Analysis

Toole Design was primarily responsible for analyzing crash data to provide guidance regarding the problems and safety focus areas that should be addressed in this plan. Due to several data limitations, some risk factors were analyzed qualitatively rather than quantitatively, utilizing a series of site visits, input from Red Cliff Tribal members and staff, and measurements from Google Earth and Google Streetview data. Further safety analysis is suggested to include collection of additional roadway feature data.

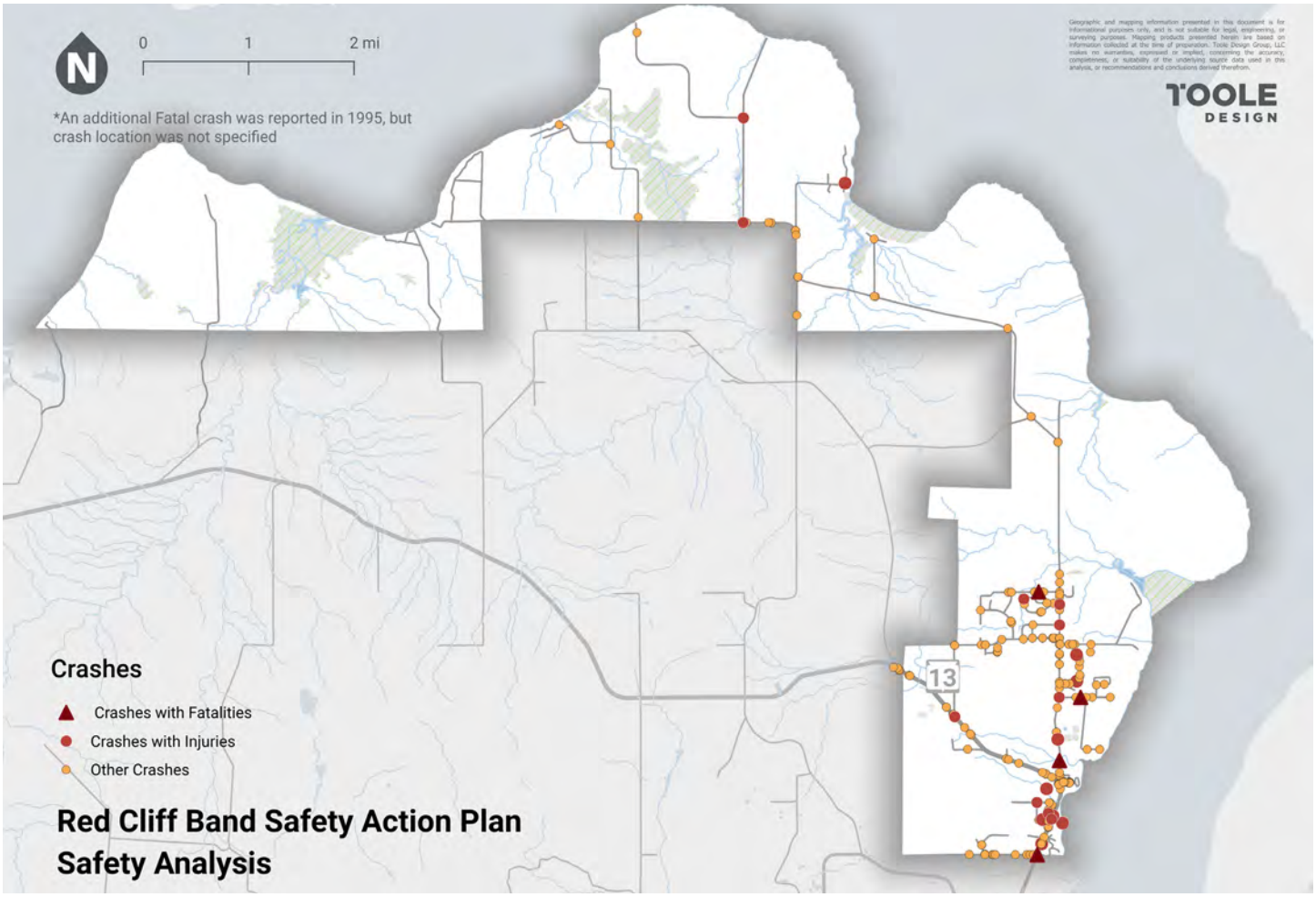


Figure 5 | *Crash Locations within Red Cliff Reservation Boundaries 2014-2023 (Toole)*

Census Data

According to the 2023 Red Cliff Tribal Census, Red Cliff supports an estimated on-reservation population of 1,313 members, with 1,181 residents responding to the survey. The median age of respondents was 35 years. Among surveyed households, 31.7% of individuals were under the age of 18, and 13.3% were elders over the age of 64. Notably, 8% of respondents reported walking to work—higher than anywhere else in the County—highlighting the need for dedicated off-road pedestrian facilities. Top priorities for improvements in the area were also surveyed, with road improvements ranking third overall and identified as the highest priority among infrastructure-related requests.

1,181
Red Cliff residents' information was collected in the survey

77.7%
are **enrolled** Red Cliff members

87.4%
are **American Indian or Alaska Native**

7.1%
are **veterans**

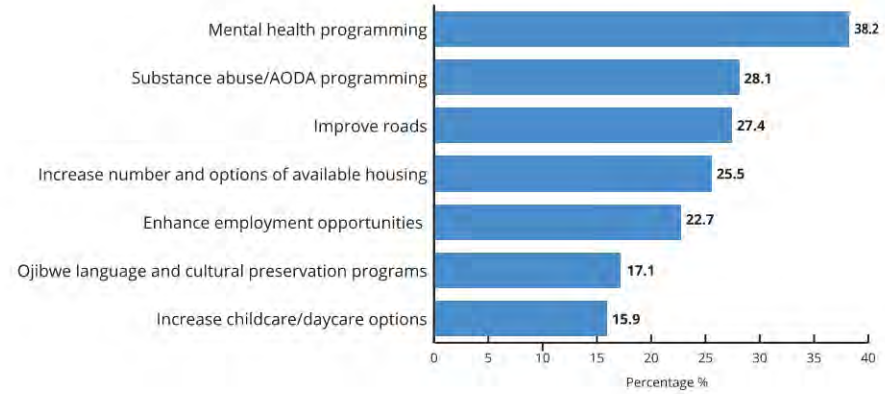
Age Snapshot

35 was the **median age**

31.7%
of individuals in surveyed households were **children** (< 18)

13.3%
of individuals in surveyed households were **Elders** (> 64)

What should be the top priorities of the Red Cliff Tribe?



Household Income Levels in Surveyed Households

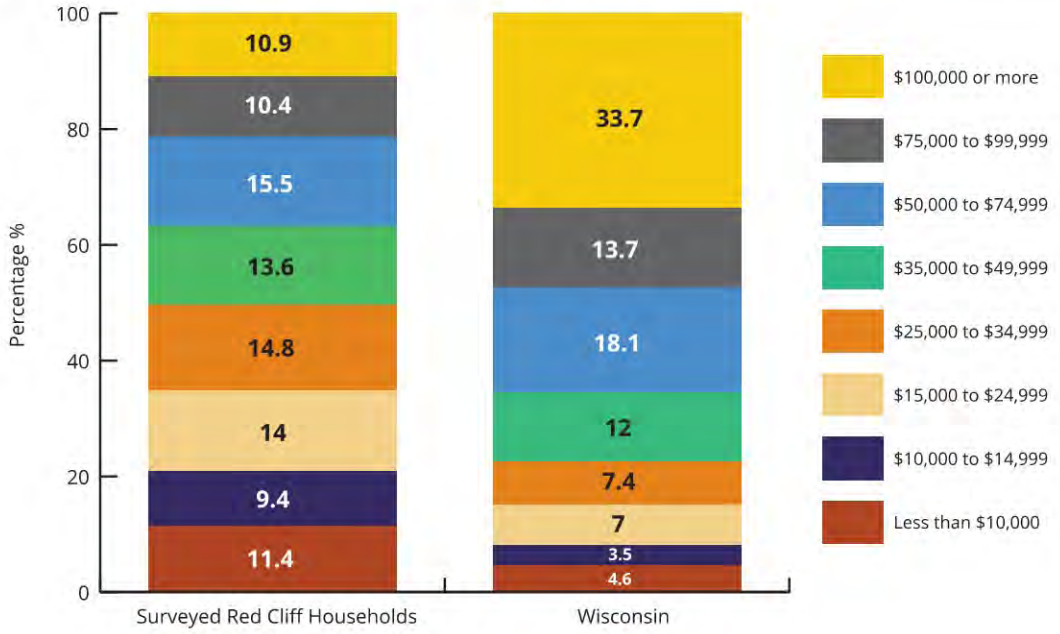


Figure 6 | *Data from the Red Cliff Tribal Census 2023 (Big Water Consulting)*

To supplement Census data, community-based, qualitative equity data was primarily utilized. This information was gathered via public engagement during the Safety Summit and through communications with tribal leaders. The primary group of concern that was identified as under served by the current transportation system was vulnerable users. This includes people walking, biking, or using various personal mobility devices for a variety of reasons. This also encompasses those without access to a traditional vehicle. Many essential services locations in the Red Cliff community, including the Red Cliff Community Health Center, are not accessible by separated pedestrian walkways and tribal members frequently use narrow road shoulders to walk to their destinations.

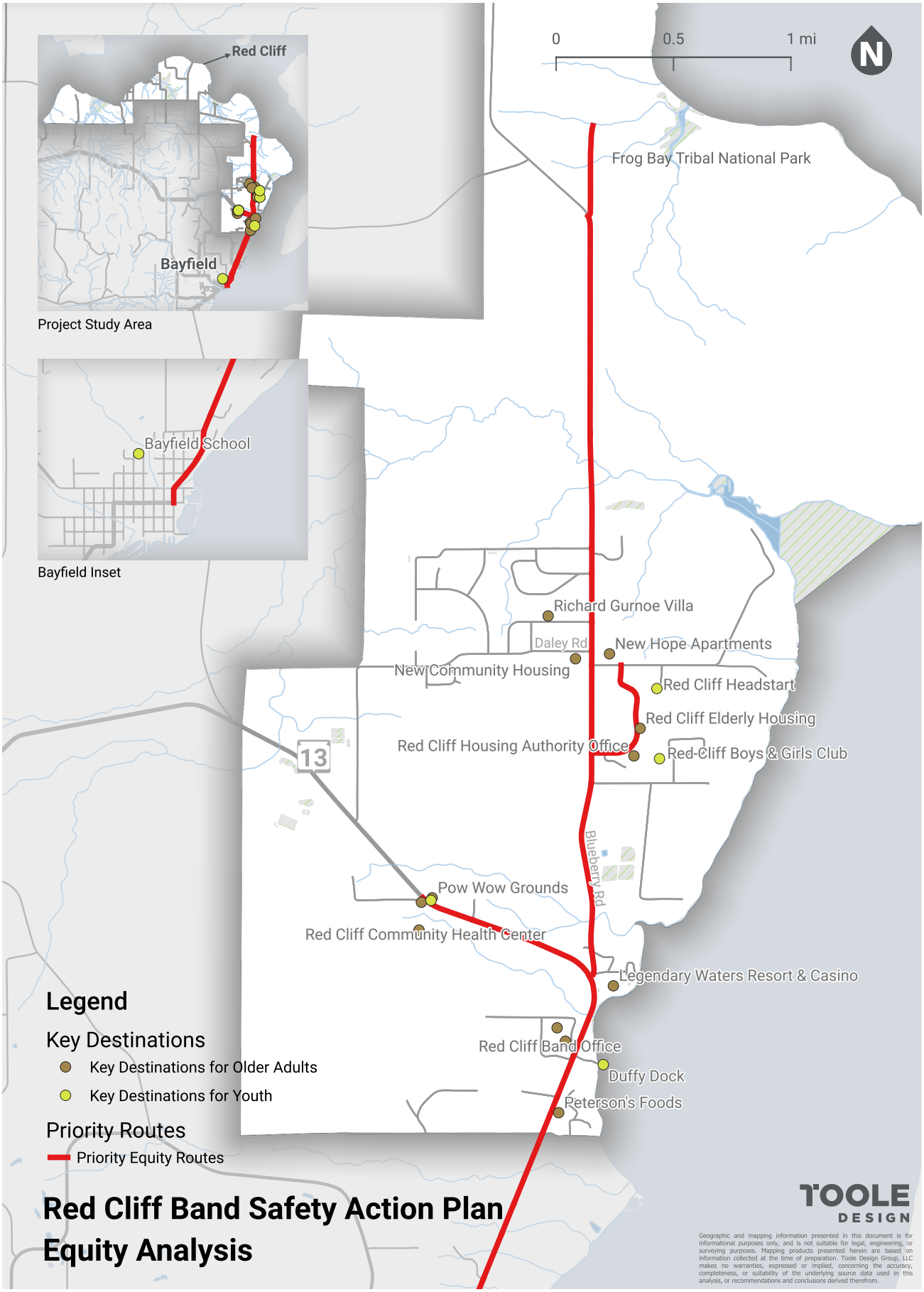


Figure 7 | *Map from the 2023 Red Cliff Commercial Zone Master Plan (Toole)*

Adopting the Safe System Approach

The Safe System Approach is a safety methodology that constitutes a paradigm shift in the way we think about traffic safety. It aims to increase collaboration across all stakeholders and refocus efforts on anticipating human mistakes.

Safe System Approach Paradigm Shifts

- Responsibility is shared by all stakeholders
- Anticipate human mistakes
- Prioritization for reducing fatal and serious injury crashes

This plan primarily addresses safe speeds, safe road design, and safe pedestrian access. Additional approaches as outlined by the Federal Highway Administration's Safe System Approach include:

- Safe Vehicles
- Safe Speeds
- Post-Crash Care
- Safe Road Users
- Safe Roads

These factors were applied to the plan by prioritizing strategies that account for human mistakes and vulnerability, ensuring that crashes(when they do occur) do not result in serious injuries or fatalities. Strategies applied include the following:

Safe Roads

Identifying and recommending roadway improvements, such as traffic calming measures, enhanced pedestrian crossings, modifications to skewed intersections, and adequate street and pedestrian lighting in high-risk areas.

Safe Speeds

Implementing speed management strategies, including road design changes and policy recommendations to reduce speed-related crashes.

Safe Road Users

Enhancing education, enforcement, and infrastructure to protect all travelers, with a focus on vulnerable users like pedestrians, cyclists, and seniors.

By integrating these principles, the project team created a comprehensive, proactive, and equity-focused plan that enhances safety for all road users across Red Cliff Reservation and surrounding community.

Figure 8 | *Federal Highway Administration Safe Systems Approach (highways.dot.gov/safety/zero-deaths)*

Image of Bressette Hill Road (Widseth)

Safe System Roadway Design Hierarchy

The Safe System Roadway Design Hierarchy is a tool that characterizes engineering and infrastructure-based countermeasures and strategies relative to their alignment with the Safe System Approach (SSA), toward the goal of eliminating traffic-related fatalities and serious injuries. The purpose of the hierarchy is to help transportation agencies and practitioners identify and prioritize countermeasures and strategies when developing transportation projects. The Safe System Roadway Design Hierarchy will facilitate greater understanding and increased application of Safe System principles. FHWA developed the Safe System Roadway Design Hierarchy in response to a recommendation from the informational report on Integrating the Safe System Approach into the Highway Safety Improvement Program (HSIP).

The Safe System Roadway Design Hierarchy includes four tiers that are arranged from most to least aligned with the Safe System principles. Tiers 1 through 3 include solutions to remove potential roadway conflicts and separate vulnerable road users from traveling vehicles, with the goal of reducing crash kinetic energy if a crash does occur, whereas Tier 4 countermeasures and strategies provide critical information to the road user so they can take appropriate action. In the Safe System Roadway Design Hierarchy, physical changes to the system are more effective than changes that rely on road users to make safe decisions. While the focus of this publication is on design improvements, Red Cliff will consider all elements of the Safe System Approach when developing future projects.

Widespread implementation of safety countermeasures supports the SSA and can accelerate achieving local, state, and national safety goals. This document is illustrative, and is not inclusive of all strategies that could support implementation of the SSA but is intended to provide transportation agencies and practitioners with a new lens to consider how Safe System solutions can be implemented through example case studies and applications.

Figure 9 | *Federal Highway Administration Safe System Roadway Design Hierarchy Tiers (highways.dot.gov/sites/fhwa.dot.gov)*

Safe System Roadway Design Hierarchy Tiers

TIER 1: REMOVE SEVERE CONFLICTS

Removing severe conflicts involves the elimination of specific high-risk conditions. This involves separating road users moving at different speeds or different directions in space to minimize conflicts with other road users. This tier includes strategies that remove conflicts such as intersection crossing conflicts, removing fixed objects along the roadside, or eliminating railway-highway crossings. Strategies in this tier may also include providing physical separation between motorized and non-motorized users to remove conflicts or providing varying degrees of buffered separation to reduce risk of collisions. These countermeasures support both the Safe Roads and Safe Road Users elements of the SSA.

TIER 2: REDUCE VEHICLE SPEEDS

Implementing design features and speed management strategies to reduce vehicle speeds effectively reduces the kinetic energy involved in a crash should it occur. States and local jurisdictions should set appropriate speed limits to reduce the significant risks drivers impose on others—especially vulnerable road users—and on themselves. To achieve desired speeds, agencies often implement other speed management strategies concurrently with setting speed limits, such as self-enforcing roadways, traffic calming measures, and speed safety cameras. Self-enforcing roads involve the use of road and roadside design elements, such as lane narrowing, intersection channelization, and horizontal and vertical deflection, to elicit lower travel speeds of motor vehicles along the roadway. This also includes features for pedestrians and bicyclists, such as median islands, raised crosswalks, and buffered bicycle lanes. These countermeasures support the Safe Roads, Safe Speeds, and Safe Road Users elements of the SSA.

TIER 3: MANAGE CONFLICTS IN TIME

Managing conflicts in time assumes that users will need to occupy the same physical space on the roadway but creates a safer environment by separating the users in time using traffic control devices, such as traffic signals or hybrid beacons, to minimize vehicle conflicts. Providing discrete and alternating opportunities for users to navigate the roadway environment is not only a safety strategy, but also one that relates to user comfort and convenience, especially for non-motorized users. These solutions support the Safe Roads, Safe Speeds, and Safe Road Users elements of the SSA.

TIER 4: INCREASE ATTENTIVENESS AND AWARENESS

Increasing attentiveness and awareness involves alerting roadway users to certain types of conflicts so that appropriate action can be taken consistent with the SSA. Examples that fall into this category include crossing visibility enhancements, backplates with retroreflective borders, and rumble strips/stripes. These countermeasures support the Safe Roads, Safe Speeds, and Safe Road Users elements of the SSA.

(U.S. Department of Transportation FHA Safe System Roadway Hierarchy)

The FHWA strongly encourages the use of PSCs (Proven Safety Countermeasures) to accelerate the achievement of the Safe System goals. To implement the safe system approach, a color-coded dot system was used in project descriptions to indicate what tiers of the safe system hierarchy each project would address.

REMOVE SEVERE CONFLICTS
REDUCE VEHICLE SPEEDS
MANAGE CONFLICTS IN TIME
INCREASE ATTENTIVENESS AND AWARENESS

Additionally, the aspects of the safe system hierarchy were part of the project prioritization weighting, as described in section 5.0.

Summary of Key Findings

In general, fatal and serious injury crashes within the Red Cliff Reservation have been trending slightly downward, but there remains a consistent trend of about three fatal or serious injury crashes per year. To achieve the Tribe's goal of zero fatal/serious injury crashes by 2035, the current 9-year crash trend would need to be amplified to achieve a reduction of, on average, about 0.34 of these crashes per year.

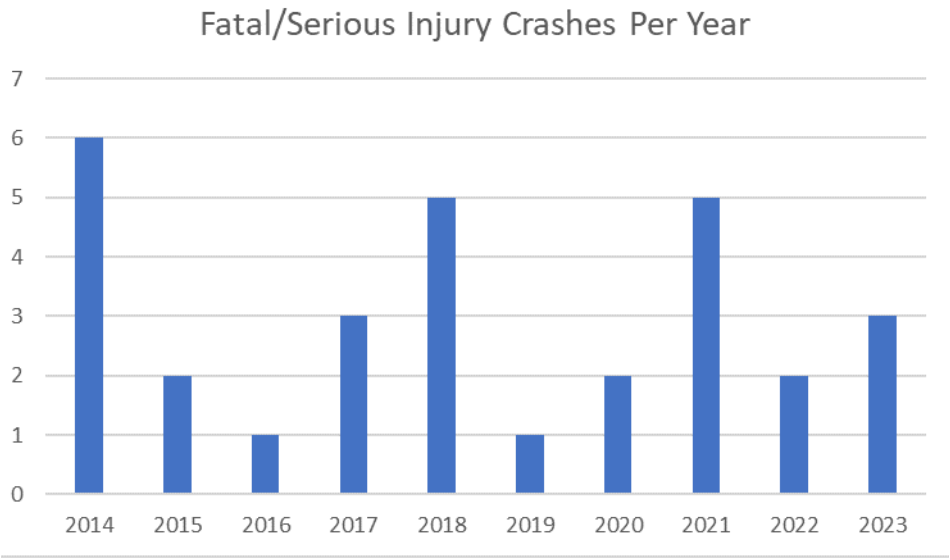


Figure 10 | *Fatal/Injury Crashes per Year on the Red Cliff Reservation (Toole)*

Risk Factors Analysis Methodology

The risk factors analysis methodology reviewed the locations of injury crashes (vehicle-only and vulnerable users) using different risk factors associated with an increased likelihood of fatal and injury crashes. These potential risk factors include horizontal and vertical geometry, traffic control devices, environmental factors, exposure/conflict points, and transportation network features. Factors were analyzed based on data from similar sized communities as well as reviewing FHWA safety information.

Injury Crash Locations Overview

Analysis of risk factors is based upon analysis of the locations of injury crashes within the Red Cliff Reservation boundaries from 2014 to 2023, supplemented by additional fatal crash information from years prior to 2014. Crash locations are inclusive of all jurisdictional systems (e.g., Wisconsin Department of Transportation, Bayfield County, Town of Russell, Red Cliff/Bureau of Indian Affairs, private, etc.), functional classifications (e.g., arterials, collectors, local streets), and other roadway network features.

Crash information was obtained from a combination of reported crashes via the WisTransPortal crash retrieval system (for crashes reported through the State) and Red Cliff Police Department crash summaries (for crashes not reported through the State). Before 2018, Red Cliff Police Department crashes were not reported to the State system. Crash locations are shown in Figure 9 (some crash locations are approximated based on available data).

Study Limitations

Limited Feature Data

As stated previously, Red Cliff does not have a robust set of roadway feature data. Analysis relied on a series of field visits and on site measurements, confirmed by Red Cliff tribal staff. Further safety analysis is suggested to include collection of additional roadway feature data. Due to this, risk factors included in this report are based on qualitative rather than quantitative analysis.

Limited Crash Data

Crashes reported by the Red Cliff Police Department were limited and do not include the more robust amount of data typically included through DT4000 series crash forms that the Wisconsin State Patrol and Bayfield County Sheriff's Office uses to document crashes, including crash types, weather conditions, crash narrative, and other contributing factors. Due to this limitation, factors contributing to crashes have been surmised based on engineering judgment and tribal staff knowledge.

Risk Factors Analysis

Risk factors for transportation and pedestrian safety are conditions or behaviors that increase the likelihood of crashes, injuries, or fatalities on or along roadways. These factors can be categorized into several key areas:

Sight Distance

Sight distance is defined by the American Association of State Highway and Transportation Officials (AASHTO) as the length of roadway that a driver can see clearly. For the purposes of this analysis, that definition is expanded from "driver" to include all transportation system users, including people walking, biking, and using personal mobility devices (sometimes referred to as "rolling"). There are various types of sight distance; this analysis focuses on the two types of sight distance most commonly applicable to urban environments: stopping sight distance and intersection sight distance.

Stopping Sight Distance

The Federal Highway Administration (FHWA) defines stopping sight distance as the distance needed for drivers to see an object on the roadway ahead and bring their vehicles to a safe stop before colliding with the object. Stopping sight distance includes two separate components: perception-reaction and deceleration. Both components of stopping sight distance are directly affected by vehicle operating speed. Table 3 shows the stopping sight distance necessary for various vehicle speeds when traveling over level surfaces in dry conditions.

The analysis team reviewed the major corridors within Red Cliff, traveling many during the safety summit, and received input from tribal staff and community members. It was noted that the majority of roadways within the Red Cliff Reservation boundary have speed limits between 25 and 35 miles per hour, however, most vehicles are traveling at higher speeds, around 40 miles per hour. This is particularly prevalent along Blueberry Road and State Highway 13.

The stopping sight distance for 25 mph zones is approximately 155 feet, while stopping sight distance in a 40 mph zone is 305 feet. In some locations, sufficient stopping sight distance due to horizontal or vertical curvature is not possible. In complex environments with multiple roadways, driveways, and multi-modal traffic, it is critical to keep vehicle operating speeds low to minimize required stopping sight distance. As shown in Table 1 , stopping sight distance is either increased or conditions do not allow for adequate sight distance. Instances in which roadway conditions would determine the vehicle speed are explained below.

Downgrades Exceeding 3%

In locations where running grades exceed 3%, additional stopping sight distance is needed to provide adequate space for perception-reaction and deceleration. Some locations with grades likely exceeding 3% include segments of Blueberry Road near Chicago Creek and near Red Cliff Creek (north of North Bradum Road), Water Tower Road approaching Blueberry Road, and State Highway 13 north of Blueberry Road.

Vehicle Speed (mph)	Stopping Sight Distance (SSD)(ft) - Level/Dry
15	80
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

Table 1 | *Necessary Stopping Sight Distances for Level and Dry Conditions*

Horizontal Curvature

In some locations with injury crash history, roadways contain horizontal curves within or approaching those locations. This can lead to the amount of available sight distance being less than the necessary stopping sight distance, particularly when vehicle operating speeds are relatively high. This is of particular concern for roadway approaches on the "inside" of a horizontal curve. Figure 11 shows an example of horizontal curvature within the intersection of State Highway 13 and Blueberry Road. Vehicles on State Highway 13 approaching from the north generally do not have adequate stopping sight distance to react to obstacles within the approaching intersection.

Figure 11 | *State Highway 13 & Blueberry Road (Google Earth)*

Intersection Sight Distance (Vehicle-Only and VRU)

Intersection sight distance is defined by FHWA as the distance a motorist can see approaching vehicles before their line of sight is blocked by an obstruction near the intersection. The minimum amount of intersection sight distance needed allows vehicles (and other users) on a minor leg of the intersection to adequately judge gaps in traffic to cross a non-stop controlled street. Figure 12 shows an example of the line of sight quantified by intersection sight distance.

Figure 12 | *Intersection Sight Distance Sight Triangle Example at Bishop Lane and Blueberry Road 25 mph Operating Speed Assumed (Google Earth)*

Intersection sight distance is directly related to the speed of the approaching vehicle on the non-stop controlled street and the time gap needed for the stopped user to clear the intersection. The needed time gap varies based on the size and weight of the vehicle and the maneuver being performed. Left turns require the greatest amount of time gap (7.5 seconds for a passenger vehicle), while right turns require the least amount of time gap (6.5 seconds for a passenger vehicle). Larger and heavier vehicles require greater amounts of time gap due to slower vehicle acceleration. Table 2 shows the necessary intersection sight distance needed for left turns for different types of vehicles for varying major street vehicle operating speeds per AASHTO design guidance.

Vehicle Speed (mph)	Intersection Sight Distance (ISD) (ft) - Left Turn, Passenger Vehicle	Intersection Sight Distance (ISD) (ft) - Left Turn, Single Unit Truck	Intersection Sight Distance (ISD) (ft) - Left Turn, Combination Truck
15	170	210	255
20	225	280	340
25	280	350	425
30	335	420	510
35	390	490	595
40	445	560	680
45	500	630	765
50	555	700	850
55	610	770	930
60	665	840	1015

Table 2 | *Necessary Intersection Sight Distance for Left Turns*

Based on a 40 mph operating speed, 445 feet of intersection sight distance is required for passenger vehicles, 560 feet for single unit trucks (such as garbage trucks or school buses) and 680 feet for combination trucks (such as semi-trucks with trailers) while a 25 mph operating speed would require significantly less intersection sight distance. In some cases, intersection sight distance is either increased from the amounts shown in Table 4 or conditions do not allow for adequate sight distance. These conditions are explained below.

Intersection Skew

See Non-Perpendicular Intersecting Roadway Geometry on page 26 for additional information. Skewed intersections also increased exposure to other vehicles due to the extended time it takes to navigate the intersection. Some State Departments of Transportation quantify this by adding 0.5 seconds to the time gap used in the intersection sight distance.

Obstacles in the Line of Sight

Where obstacles are present in the line of sight, roadway users may take risks when trying to cross or turn onto a major street. Examples of obstacles that may be in the line of sight include parked cars, utility poles and boxes, boulevard trees, light poles, retaining walls, signs, and tall landscaping items (bushes, other features).

Increased intersection sight distance due to higher operating speeds requires additional clearing and maintenance of roadside barriers to visibility. Figure 13 shows an example of an obstructed line of sight. In this instance, a vehicle on Bishop Lane would not be able to see an approaching vehicle, pedestrian, or cyclist. Objects that can obscure view include, but are not limited to tree branches, signs, utility poles, fences, and other large objects withing the sight distance triangle.

Figure 13 | | *Example of Obstructions in the Line of Sight at Blueberry Road and Bishop Lane (Widseth)*

Additional Travel Lanes

It is to be assumed that a two-lane roadway is being crossed by a stopped vehicle. When roadways include multiple lanes, additional time is needed and thus the necessary intersection sight distance is increased. Some State Departments of Transportation quantify this additional time gap as 0.5 seconds per additional lane for passenger vehicles and more for larger vehicles. This includes turn lanes, which would be applicable at the Blueberry Road/State Highway 13 intersection.

Regulatory Speed Limits

Statutory speed limits in the state of Wisconsin are set by Wisconsin Statute 346.57, which states the following speed limits applicable to the Red Cliff Reservation area:

- 35 mph on any highway in a semi-urban district outside the corporate limits of a city or village
- 55 mph on any highway where other fixed limits do not apply

The jurisdictional owner of the roadway may set and post speed limits that are not the statutory speed limits above subject to additional requirements in Wisconsin Statute 349.11, which supersede the statutory limits. Many roadways within the Red Cliff Reservation area are posted for lower speed limits than statutory limits (such as segments of Blueberry Road being posted at 25 mph). Although many speed limits within the Red Cliff Reservation boundaries are posted for relatively slow speeds, anecdotal and observed operating speeds often exceed these posted limits. This is generally due to the geometric design and surrounding land use contexts of the roadway promoting higher speeds than are posted.

Intersections on Curves (Roadway Geometry)

Where roadways intersect on horizontal curves, adequate intersection sight distance between a vehicle stopped on the minor roadway and vehicles traveling on the major roadway may be impaired, particularly for drivers with limited range of neck mobility. Drivers on the side streets, particularly on the inside of the horizontal curve, may take risks and pull into traffic without the adequate time to cross or turn, and the vehicles traveling on the major roadway may not have the adequate stopping sight distance to stop or avoid the vehicle from the minor street.

One such example is shown in Figure 14 at the intersection of State Highway 13 and Blueberry Road where State Highway 13 traffic does not stop and Blueberry Road traffic stops. The roadway leg on the inside of the curve is the location of the new Buffalo Bay gas station and convenience store, and is also the current location of boat storage for those staying at the casino or tribal campground on the east side of the intersection.

Figure 14 | *Intersections Located on Horizontal Curves Example at State Highway 13 and Blueberry Road (Google Earth)*

Non-Perpendicular Intersecting Roadway Geometry

Intersection skew is defined as two roadways meeting at angles less than 90 degrees. Intersection skew presents problems for roadway users on the side street to adequately see the users on the major street, particularly as skews exceed 60 degrees. Users with limited neck mobility are particularly susceptible to problems at skewed intersections as their limited range of mobility does not allow for them to see the entire necessary sight distance triangle. Figure 15 shows an example of a skewed intersection. This particular intersection is the location of at least one serious injury crash within the analysis period.

Figure 15 | *Skewed Intersection Example at State Highway 13 and Bradum Road (Google Earth)*

Lack of Pedestrian and Bicyclist Infrastructure

Many of the serious injury crashes documented in the analysis time period involved someone walking or biking, specifically along State Highway 13, Blueberry Road, Bishop Lane, and New Housing Road. All four of the noted fatal crashes involved a pedestrian walking within or along the side of a roadway. Unfortunately, most of the Red Cliff Reservation area does not include sidewalks, pedestrian trails, or other infrastructure for people without access to a reliable personal vehicle. Exceptions include the following:

- A sidewalk was installed along the east side of State Highway 13 from Bresette Hill Road to the existing Buffalo Bay gas station and convenience store and a shared use pedestrian path was installed along the west side of State Highway 13 from Bresette Hill Road to Blueberry Road (with a gap along Pike Road) during a reconstruction project in approximately 2009.
- Striped pedestrian crossings are provided across State Highway 13 at Bresette Hill Road, Gordon Road, and Blueberry Road and across Dock Road and Gordon Road where they intersect State Highway 13. The crosswalk markings have faded and are no longer effective, as they have not been repainted since their initial installation in 2009.
- Two rectangular rapid flashing beacon signed crosswalks will be installed in the summer of 2025.
- Two roadways include a striped, non-buffered pedestrian shoulder (approximately 4’ wide) installed in response to previous fatal or serious injury crashes: Blueberry Road from north of State Highway 13 to North Bradum Road and Pageant Road from Blueberry Road to Tiny Tot Drive.

Areas of Increased Pedestrian & Bicyclist Activity

Many injury crash locations are located in areas with high walking and biking volumes along Blueberry Road. State Highway 13 and North Bradum Road, New Housing Road, and Pike Road. Land use features and community services in these areas generate pedestrian and bicyclist activity that increases potential exposure to vehicle traffic. Separation of vulnerable road users (defined as those walking, biking, or using a personal mobility device) from motor vehicle traffic has been shown to lead to significant safety benefits, especially where vehicle traffic operates at speeds over 30 mph. This is particularly important where there is existing walking and biking demand or there is walking and biking demand that is being suppressed due to a lack of dedicated pedestrian infrastructure.

Vulnerable Users Project Map & Background

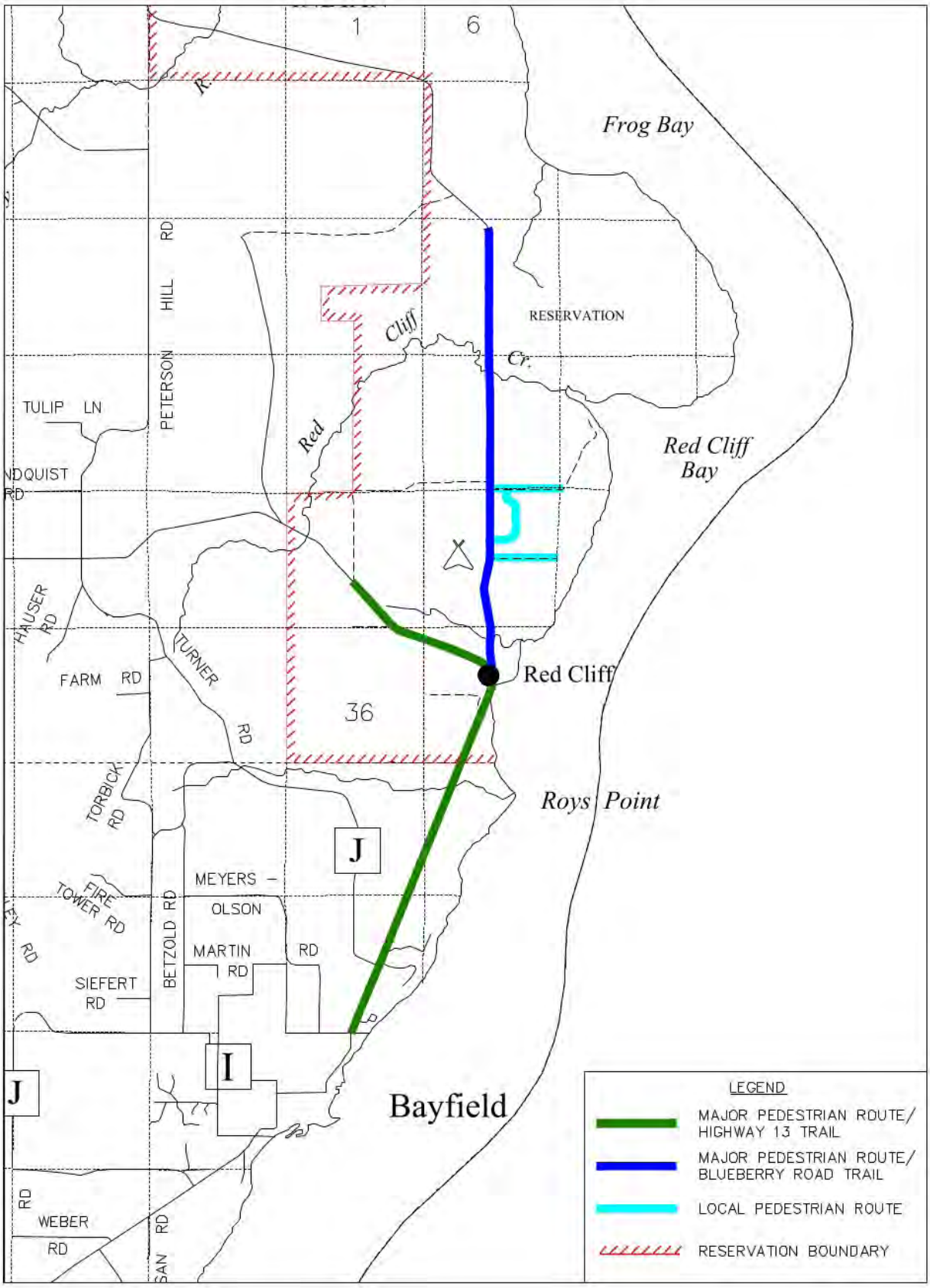


Figure 16 | *Vulnerable Users Project Map (Widseth)*

The Red Cliff Band of Lake Superior Chippewa proposed the Pedestrian Pathways Project to address long-standing safety hazards and mobility challenges faced by tribal members and visitors traveling by foot or bicycle along key transportation corridors. The project included design, engineering, NEPA assessment, rights-of-way acquisition, and construction of two paved pedestrian pathways along critical segments of Blueberry Road and State Highway 13—both of which serve as high-use routes for tribal residents, school children, and tourists.

The Tribe applied for a Safe Streets and Roads for All (SS4A) Implementation Grant in Spring 2025 to complete the full project. In addition, a Tribal Transportation Program Safety Fund (TTPSF) award is being sought to fulfill the required 20% local match. If SS4A funding is not awarded, TTPSF funds will be used to complete the project's design, environmental, and pre-construction phases independently. The project was shaped by years of community feedback and data-driven safety planning, and it directly supports federal priorities around safety, equity, multi-modal access, and tribal self-determination.

With strong community support, demonstrated need, and active planning partnerships in place, this project represents a critical step toward eliminating transportation-related fatalities and serious injuries while enhancing mobility and quality of life for the Red Cliff community. Within the Red Cliff Reservation area, the following roadways experience the greatest walking and biking demand despite a lack of safe, dedicated pedestrian infrastructure. These areas were identified from community engagement results, conversations with tribal staff, and site visits.

Highest demand

- Blueberry Road from State Highway 13 to North Bradum Road
- State Highway 13 from Blueberry Road to Aiken Road
- Pike Road from State Highway 13 to the existing end of the State Highway 13 trail to Blueberry Road (missing trail segment)

Medium demand

- New Housing Road
- North Bradum Road/Daley Road residential neighborhoods
- Pageant Road from Blueberry Road to Tiny Tot Drive
- Pike Road/Community Road residential neighborhood
- Bishop Lane/Youth Center Drive/Bishop Loop
- Connection of existing sidewalks/trails to local businesses or tribal government land use (examples include the Tribal Administration, Food Distribution, Family and Human Services, Peterson's Foods, Red Cliff Fish Company, and Community Health Center, etc.)

Roadway Departures

Roadway departures are defined as vehicles unintentionally leaving the roadway and not returning to the roadway before either crashing into a roadside feature or ditch. Vehicles that leave the roadway but are able to recover prior to a crash are not included in this analysis as those events do not typically lead to crashes involving injuries.

Common locations for roadway departures are areas that have higher operating speeds that are also located on horizontal curves and/or on significant vertical grades. Typically, roadway departure crashes occur more frequently in rural areas. At least one fatal and multiple serious injury crashes reported involved a roadway departure. Below are some other factors related to roadway departures.

Lack of Clear Horizontal Curvature and Road Ending Signage

Horizontal curvature signage and road ending signage are useful best practices to alert drivers of a change in the alignment of a roadway or the end of a roadway, respectively. This is especially true in locations where drivers have been driving in a straight line for an extended period and may become desensitized to changes in the roadway. In many locations where these conditions exist within the Red Cliff Reservation, signage is either missing completely, not adequately provided, or in poor condition.

One such example is provided in Figure 17 on Blueberry Road approaching Frog Bay Road where a single horizontal curve warning sign is provided. This sign is no longer fully upright, appears to not be adequately retroreflective, and may not include an appropriate advisory speed. Retroflective Chevron signs are also not provided at the curve location (in this case due to a visual trap – see Visual Trap section for more information). Enhancement of curvature signage would alert drivers more adequately of the change in roadway alignment coming up so that they can operate their vehicles appropriately.

Figure 17 | *Existing Horizontal Curvature Signage Example along Blueberry Road approaching Frog Bay Road (Google Earth)*

Visual Traps

A visual trap occurs when two roadways intersect on a horizontal curve with one roadway (typically the minor roadway) continuing straight from the other roadway's previous alignment and the other roadway curving left or right without a visual separation of the two roadways. Crashes at these locations tend to occur between the two roadways as drivers make an incorrect decision as to which roadway they intended to take and they cannot fully correct their vehicle prior to leaving the roadway. Figure 18 shows an example of this situation at the intersection of Blueberry Road and Frog Bay Road. Visual trap intersections can be modified to realign the minor roadway either outside of the horizontal curvature of the major roadway or by realigning the curving roadway into a full "T" with the minor roadway.

Figure 18 | *Visual Trap Example at Blueberry Road and Frog Bay Road (Google Earth)*

Shoulders and Clear Zones

Many locations in the more rural parts of Red Cliff lack adequate road shoulders (paved or gravel) prior to ditch sloping to allow for vehicles to recover if leaving the roadway. Many of the same locations also lack adequate clear zones leading to vehicles being unable to recover prior to crashing into roadside features such as trees, utility poles, and ground transformers. Vehicle operating speeds directly affect the amount of clear zone that is needed to recover after leaving the roadway. Figure 19 shows an example of this situation on Blueberry Road south of Frog Bay Road where essentially no shoulders are provided and trees are in close proximity to the side of the roadway.

Figure 19 | *Example of Lacking Shoulder and Clear Zone at Blueberry Road south of Frog Bay Road (Google Earth)*

Environmental Factors: Lighting

At many locations in Red Cliff, lighting is either not present at all or provided at minimal levels. In both cases, adequate illumination may not be sufficiently present during dark conditions to provide adequate visibility for all roadway users. This is of particular importance at intersections, which is where the majority of potential conflicts between roadway users occur. One typical lighting example is provided in Figure 20 at the intersection of Blueberry Road and New Housing Road.

Although this study did not analyze lighting patterns at each intersection, many lighting fixtures were found to be inadequate in quantity and quality, especially at pedestrian crossing locations. In addressing this issue, care must also be taken not to over-illuminate the intersections, which can be prevented through the use of energy-efficient LED directional lighting fixtures that only illuminate areas where light is needed, preventing unnecessary light pollution, as well and thus illuminate items that should not be illuminated, such as adjacent houses.

At intersections with higher traffic, complex intersections, or those with increased roadway widths, additional lighting fixtures are often needed to fully illuminate a larger footprint of the intersection or one or more approaches to the intersection. Most of the intersections along State Highway 13 within the Red Cliff Reservation qualify under this definition as they are the busiest intersections and are utilized the most by tourists and other users that may not be familiar with the area.

Figure 20 |*Example of Single Intersection Light at Blueberry Road and New Housing Road (Google Earth)*

Chapter 4
Solutions & Strategies

Existing Efforts

Review of Red Cliff Policies & Processes

Prioritizing Transportation for Vulnerable Users

Existing Efforts

As mentioned in Chapter 2, several draft safety plans have been completed by Red Cliff in the past. While the Tribe faced several hurdles in executing the goals of previous safety plans, primarily financial, some improvements have been successfully implemented. These include the following:

- Paved shoulder on Blueberry Road between (Church Road and Pageant Road)
- Lowered speed limit on a portion of State Highway 13
- Pedestrian walkway along bridge over Chicago Creek on Blueberry Road
- State Highway 13 – Addition of curb and gutter, pavement markings, sidewalks, and a multi-use pedestrian path extending from just west of Blueberry Road south along State Highway 13 to Bresette Hill Road

There are proposed plans to construct two non-motorized pedestrian trails that would connect the Red Cliff Community with the City of Bayfield and Frog Bay Tribal National Park. These trails would reduce the unsafe practice of using the shoulders of Highway 13 and Blueberry Road as unprotected walkways. See Appendix 3 for more information.

Non-construction related safety efforts have also been made in Red Cliff. These include the following:

- Traffic Code: The Red Cliff Tribal Council has enacted a Traffic Code (Chapter 14 of the Tribal Constitution), regulating traffic within the boundaries of the Red Cliff Reservation

- Traffic safety education efforts made at childcare facilities and schools relating to safe pedestrian and bicycle behavior on tribal roads.

- In partnership with Bay Area Rural Transit (BART), Red Cliff operates Miskwaabekong Transit, which offers door-to-door on call bus services to the Red Cliff community and surrounding areas. This service operates Monday through Friday from 6am-7pm, and on Saturday from 8am to 4pm.

- Miskwaabekong Transit and the Red Cliff Community Health Center maintain an agreement allowing passengers to obtain rides to their medical appointments at no cost to the patient.

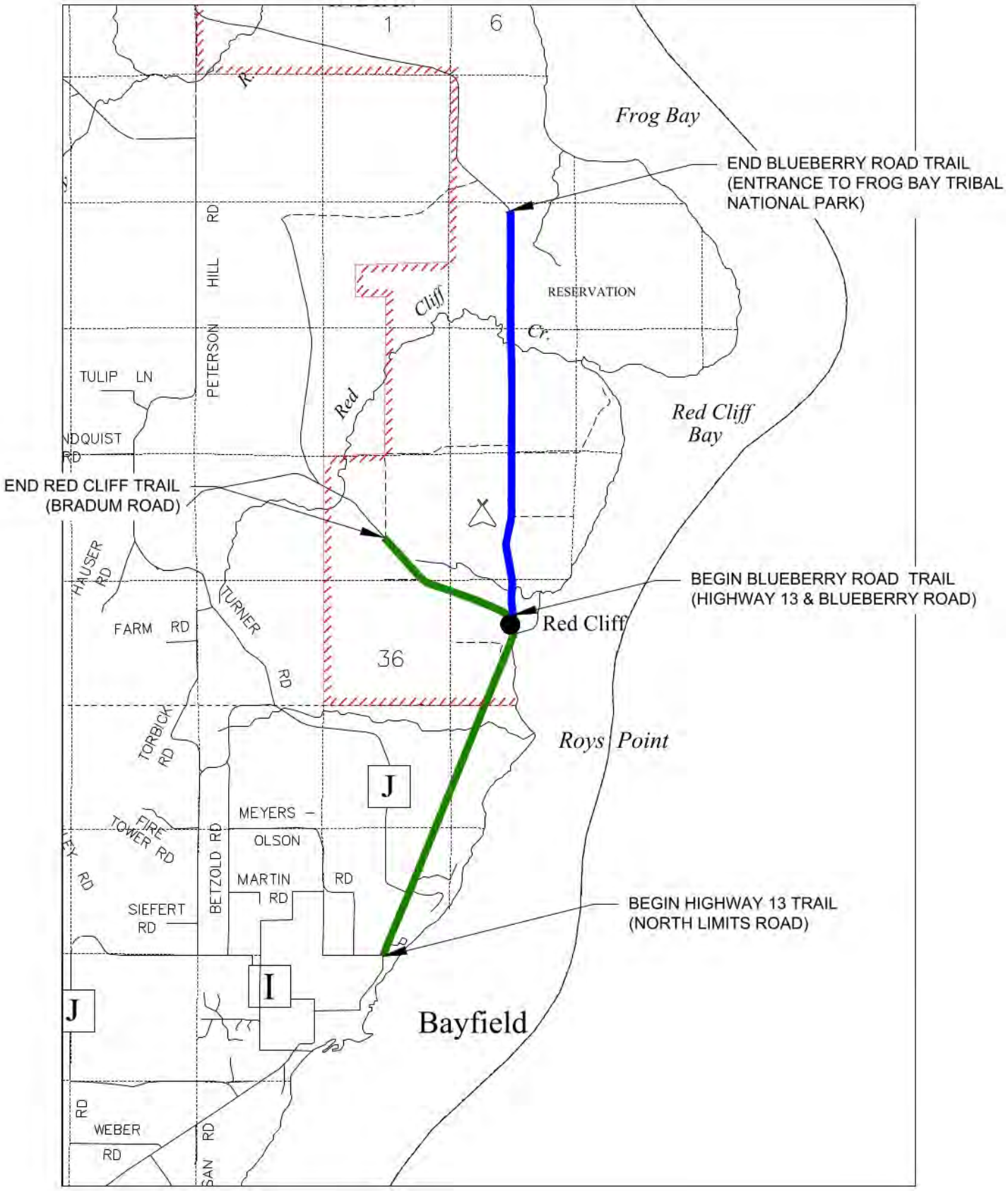


Figure 21 | *Current Transportation Alternatives Study Area (SEH & WisDOT)*

A Pedestrian Crosses State Highway 13 in Red Cliff (Widseth)

Review of Red Cliff Policies & Processes

The policies of the Red Cliff Band are an important part of implementing safety improvements. To promote a comprehensive approach to vehicular and pedestrian safety, the Red Cliff Code of Law was reviewed with this Safety Plan in mind. Policies revised include the allowance of ATVs along tribal roads (13.7) and the Red Cliff Traffic Code that sets several specific speed limits along certain roads (14.9.1, 14.9.2).

ATV Policy (Policy 13.4)

ATVs and UTVs are a prevalent transportation mode in the Red Cliff community. Current policy allows the use of these vehicles on tribal roadways. In the past, a statute restricting ATV usage on roadways was suggested, but it was deemed impractical.

Speed Limits (Policy 14.91, 14.92)

The Red Cliff Traffic Code prohibits exceeding any posted speed limits, but also lists several specific speed limit regulations:

- 25 mph on Blueberry Road from State Highway 13 to the north side of Red Cliff Creek.
- 35 mph from the north side of Red Cliff Creek to the junction of Emil Road and Blueberry Road.
- 15 mph on that portion of Butterfield Road, Old Housing Road, Pike Road, or any other road within 300 feet of a housing development.

It is not recommended that any changes be made to speed limits at this time until proposed changes to roadway context and geometry can be implemented. These factors contribute to the present problems associated with drivers exceeding posted speed limits within reservation boundaries. Recommendations for policy-related safety improvements are listed in the table below, with referencing for short-term time frames between 1-3 years, and medium-term, between 3-5 years.

#	Actions	Timeframe
1	Incorporate priorities from the Comprehensive Tribal Transportation Safety Action Plan into Red Cliff's Capital Improvement Plan	Short-Term
2	Update engineering design standards to increase safety countermeasures	Short-Term
3	Update Tribal Zoning Codes and Residential Regulations to include safety-focused design and development standards	Short-Term
4	Modify the Engineer's Report template to include safety analysis and countermeasure implementation	Short-Term
5	Consider creating a Safety Committee comprised of residents and tribal staff to address current and future road and pedestrian safety concerns	Short-Term
6	Proactively zone and plan for redevelopment opportunities that will increase transportation safety	Medium-Term
7	Consider a snow-removal and maintenance policy for dedicated pedestrian and bicycle facilities	Medium-Term

Table 3 | *Policy, Program, and Government Structure Action*

Prioritizing Transportation for Vulnerable Users

The Red Cliff community has relatively low vehicle ownership rates, with many people relying on multi-modal transportation such as ATVs, snowmobiles, bicycles, scooters, and walking to get to their destinations. Several documented crashes within the past 10 years have resulted in serious injuries and deaths from vehicle-pedestrian collisions. Improving safety for vulnerable users (people walking, biking, or using personal mobility devices) was identified as a top priority during the Safety Summit, and past safety plans have all identified a lack of sufficient continuity and connectivity for multi-modal transportation users.

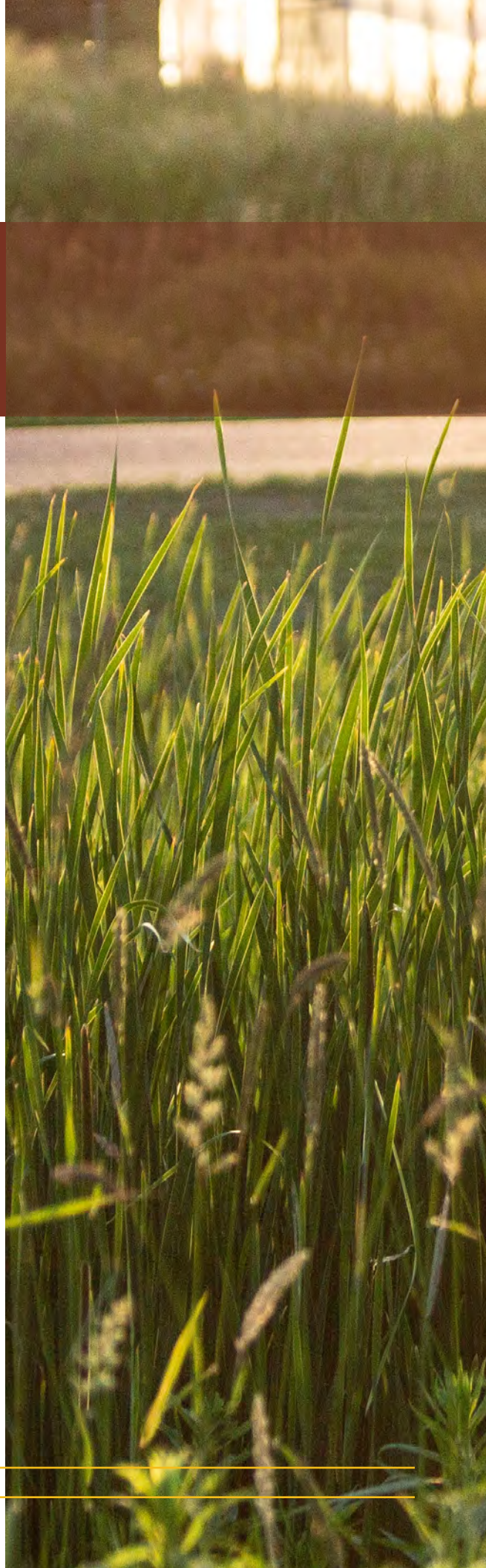
Chapter 5
Recommendations

Strategies

Prioritization of Project Improvements

Project Vicinity Map

Priority Projects



Introduction

In alignment with the vision of the Federal Highway Association, the Red Cliff Reservation has adopted SS4A strategies that prioritize equity, cultural sensitivity, and the unique transportation needs of Tribal communities. Strategies were chosen based on a thorough analysis of crash data, community input, and local knowledge of high-risk areas and transportation challenges. Emphasis was placed on infrastructure improvements, safe pedestrian and bicycle access, and speed management measures—ensuring that selected actions reflect both proven safety practices and the values and priorities of the Red Cliff community.

Timeframes

Short-term
1-3 years

Medium-term
3-5 years

Long-term
5-10 years

Cost

$$$

<$150,000

$$$

$150,000-$500,000

$$$

> $500,000

Strategies | Walkways & Shared Use Pedestrian Paths

Purpose

Walkways and shared use pedestrian paths create dedicated routes for pedestrians, bicyclists, scooters, and skaters that are physically separated from vehicle traffic.

Description

Walkways include any type of defined space or pathway for use by a person walking or using a personal mobility device. Sidewalks are the most common type of walkway. Shared use pedestrian paths along roadways, or side paths, accommodate two-way traffic for bicyclists and pedestrians, reducing conflicts for space. While physically separated from traffic, they are typically located inside and parallel to the road right-of-way.

Applicable Street Types

All street types.

Applicable Locations

Walkways and shared use pedestrian paths are used in locations where people are expected to walk or bicycle.

Figure 22 | *Shared use path along 18th Avenue in Alexandria, MN (Widseth)*

Figure 23 | *Shared use path along Fisher Avenue in Crookston, MN (Widseth)*

Safety Benefits

Physically separates pedestrians and bicycles from vehicles, reducing conflicts with drivers.

Expected Crash Reduction

A 65-89% reduction in crashes involving pedestrians walking along roadways can be expected when installing a sidewalk according to the Federal Highway Administration.

Considerations

- Walkways and paths must be fully accessible to pedestrians with disabilities and should comply with Public Right-of-Way Accessibility Guidelines.

- Easements for right-of-way may be needed for the areas where walkways could be installed, potentially extending the timelines required for planning and design.

- Installing a sidewalk or shared use pedestrian path often requires relocation or removal of power poles, trees, ground transformers, or other obstructions that are commonly present on the roadside.

- Shared use pedestrian paths need to accommodate maintenance vehicles. Typically, snow removal on shared use pedestrian paths is the responsibility of the local jurisdiction, and additional funding, staffing, and equipment may be needed as the Tribe's path network grows.

- When shared use pedestrian paths intersect with major roads, marked crosswalks should be provided. Rectangular Rapid Flashing Beacons (RRFBs) or Pedestrian Hybrid Beacons (PHBs) are often appropriate. Signs, and sometimes pavement markings, should indicate to both drivers and path users on an intersecting road that a crossing is upcoming. Pedestrian tunnels underneath road intersections are an alternative to reduce all motorist/path user conflicts.

- In suburban areas, sidewalk construction is often the responsibility of developers constructing new subdivisions. Communities can leverage the development approval process to support the construction of a connected, accessible network of sidewalks and paths.

- Nationwide, sidewalks are less common in low-income areas, particularly in rural tribal communities. Local jurisdictions should take care to install an equitable distribution of sidewalks and paths that provide the same level of accessibility regardless of a community's level of wealth.

Strategies | Enhanced Delineation for Horizontal Curves

Purpose

The purpose of enhanced delineation for horizontal curves is to increase driver awareness of hazardous road curvatures and provide additional visual guidance to alert drivers when navigating the curves.

Description

This countermeasure includes a family of signage and marking treatments developed to better delineate horizontal curves. These measures can be implemented separately or together. Treatments applied in advance of the curve include in-lane curve warning pavement markings, curve warning signage, and electronic speed radar feedback signs. Treatments applied along the length of the curve include retroflective chevron signage, delineators, and wider edge lines.

Oversized signs, fluorescent signs, and retroreflective strips on signposts can be used to draw attention to warning signage. Dynamic sign treatments include flashing beacons triggered by approaching vehicles.
Sequential Dynamic Curve Warning Systems embed LEDs into the chevron signs placed along the curve, with the LEDs programmed to flash in coordinated patterns.

Applicable Street Types

Arterials and collectors in rural areas.

Applicable Locations

At horizontal curves on rural roadways where data indicates a higher risk of roadway departures with associated severe injuries or fatalities, such as:

- Sharp or blind curves
- Curves without shoulders
- Curves with steep side slopes

Figure 24 | *Example of chevron signs along a horizontal curve (MnDOT Traffic Safety Fundamentals Handbook)*

Safety Benefits

- Reduces frequency of roadway departure crashes.
- Improves driver awareness of upcoming curves, particularly in low-visibility conditions including unlit roadways at night, inclement weather, or snow-covered pavement.

Expected Crash Reduction

Reduction in crashes depends on the extent of treatment provided:

- 20% reduction in fatal and serious injury crashes (FHWA-SA-07-015 U.S. DOT)

Considerations

- Enhanced delineation may be implemented as an interim measure to improve safety where funding is not available for roadside improvements.

- Signs and pavement markings must comply with provisions of the FHWA Manual on Uniform Traffic Control Devices

- Providing redundancy through the application of multiple treatments at one location is consistent with the Safe Systems Approach of recognizing and designing for human error.

- Static, enhanced, and conspicuous warning signage should be considered for systemic implementation across the rural roadway network, prioritizing areas with the highest risk. Due to the higher cost of dynamic sign treatments, they are better suited as a reactive treatment at locations with a history of fatal and severe injury crashes.

Strategies | Wider Edge Lines

Purpose
Enhance the visibility of travel lane boundaries compared to traditional painted edge lines.

Description
Edge lines are considered “wider” when the marking width is increased from the minimum normal line width of 4 inches to a width of 6 inches.

Applicable Street Types
Arterials and collectors.

Applicable Locations
Wider edge lines are effective in reducing crashes on high-speed rural roadways but may be applied to all contexts.

Safety Benefits
Reduce the risk of vehicle roadway departure crashes by increasing the visibility of roadway edges.

Considerations
- Wider edge lines can be implemented using existing equipment during maintenance procedures like re-striping and resurfacing, with the only cost increase being the additional materials.
- The benefit-cost ratio of widening edge lines from 4” to 6” has been estimated as high as 25 to 153.
- Standard paints may have a lower initial cost, but more durable materials (e.g., thermoplastic) may result in a lower life cycle cost based on their longer service life.
- As the number of automated vehicles increases on roadways, wider edge lines may provide better guidance for these vehicles’ tracking sensors.
- Agencies should consider adopting 6” edge lines as a design standard, particularly for rural two-lane roadways, due to the low cost, ease of installation, and crash reduction benefit.

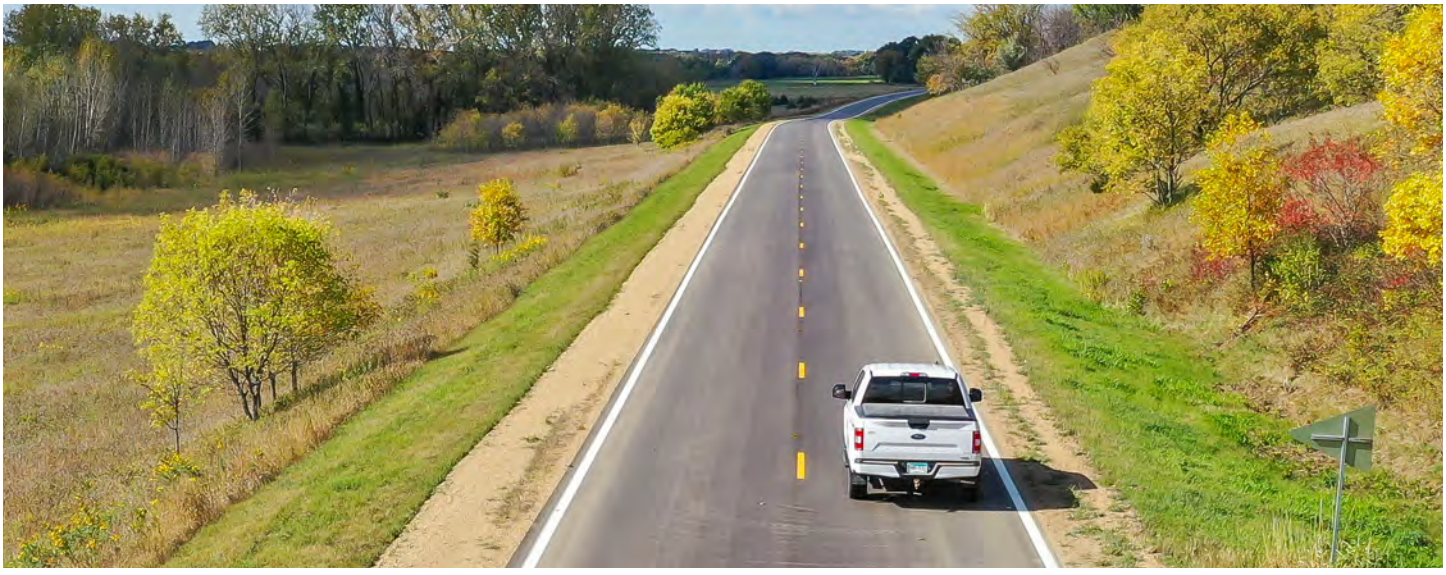


Figure 25 | *Widened edge lines along County Highway 12 in Montevideo, MN (Widseth)*

Strategies | Rumble Strips & Stripes (for 2-Lane Roads)

Purpose

Longitudinal rumble strips alert drivers through vibration and sound that their vehicle has left the travel lane, providing them a chance to recover their vehicle before encountering the roadway edge or a vehicle traveling the other direction. Rumble stripes provide similar benefits and can increase visibility and longevity of lane line pavement markings.

Description

Longitudinal rumble strips are a repeating pattern of ridges, typically milled into the pavement surface, which create loud noise and vibration when they come into contact with a vehicle tire. They are typically installed along the centerline and/or along the shoulder, commonly 1' outside the edge line, on rural roadways. Rumble stripes refer to longitudinal rumble strips where the centerline or edge line pavement marking is placed directly over the rumble strip.

Applicable Street Types

Rural arterials and collectors.

Applicable Locations

Rumble strips are effective in reducing crashes on high-speed rural roadways. They typically are not installed within 600' of residential areas to reduce noise impacts to residents, although there are sinusoidal options that reduce this impact.

Safety Benefits

- Longitudinal rumble strips reduce crashes associated with inattentive and fatigued drivers by providing a multi-sensory alert prior to a lane or road departure.
- Rumble stripes increase the visibility of pavement markings, particularly in wet and nighttime conditions.
- Rumble stripes may increase the longevity of pavement markings, providing longer lasting benefits for clear roadway delineation.

Figure 26 | *Rumble strips along Highway 75 near Halstad, MN (Widseth)*

Expected Crash Reduction

- Shoulder rumble strips or stripes can result in a 24% reduction in single vehicle, run-off-road fatal and injury crashes on two-lane rural roads. (MnDOT Rectangular Rumble Strip Safety Evaluation)

Considerations

Rumble strips are relatively low-cost, and economic analyses have indicated benefit-cost ratios that exceed 100 to 1.

Rumble strips can be a significant source of noise pollution for rural residences due to the sudden loud sounds they generate when driven over. Many agencies adopt a policy to avoid rumble strips within a certain radius of residential neighborhoods. Gaps in the rumble strip pattern are commonly provided at driveways and intersections where turning vehicles are expected to leave the travel lane.

Where rumble strips cannot be placed due to noise concerns, agencies may consider an alternative sinusoidal milling pattern (also known as “mumble strips”) that reduces noise. However, the safety benefits of this design need more study.

Rumble strips are not known to create additional maintenance challenges on the roadways where they are installed: Where rumble strips are placed along a pavement joint, there are typically no issues with joint stability if the pavement structure and joint was already in good condition.

Studies have shown no evidence of issues related to snow, ice, or rain build-up in the rumble strip.

Edge line rumble stripes have been shown to be more effective than rumble strips placed closer to the edge of the shoulder on rural freeways, but no corresponding effect has been proven for two-lane rural roads. Researchers have hypothesized that in some contexts, rumble stripes may increase safety by giving drivers more time to recover between the time they cross the rumble strip and the time they leave the paved roadway.

If the road is a designated bicycle route, the placement of rumble strips should consider people riding bicycles or operating other personal mobility devices. Sufficient clear width on the shoulder outside the rumble strip must be maintained to accommodate an operating space for these users. Rumble strips as narrow as 8 inches still provide substantial noise and vibration feedback to drivers and can increase the clear width for bicyclist travel on shoulders. Periodic gaps in the rumble strip pattern should be provided to allow bicyclists and other users to safely maneuver across the strip to avoid hazards.

Agencies should consider installing centerline and shoulder rumble strips as a standard design when reconstructing or resurfacing rural roadways, due to the low additional cost and crash reduction benefit. Milled rumble strips can be installed as a systemic treatment on existing roadways, but they should not be installed where the existing condition is poor, as the milling process could contribute to further deterioration of the pavement.

Strategies | Safety Edge

$$$

Purpose

Improve recoverability for vehicles departing the roadway by eliminating vertical drop-offs at the pavement edge.

Description

The safety edge paving technique replaces the traditional vertical edge of pavement with a beveled edge. The bevel improves the grip between the tires and the ground when a vehicle crosses over it, particularly later in a roadway's lifespan when the unpaved shoulder may have eroded away and created a drop-off at the edge of the pavement.

Applicable Street Types

All street types in rural areas.

Applicable Locations

Rural areas and any roads that are not designed with curb and gutter.

Safety Benefits

- Reduces the number of roadway departure crashes by improving the chances of vehicles being able to recover prior to a crash.
- Can reduce head-on crashes, as some head-on crashes are caused by drivers over-correcting after a roadway departure and losing control.

Figure 27 | *Example of a Safety Edge (MnDOT 2015 Traffic Safety Fundamentals Handbook)*

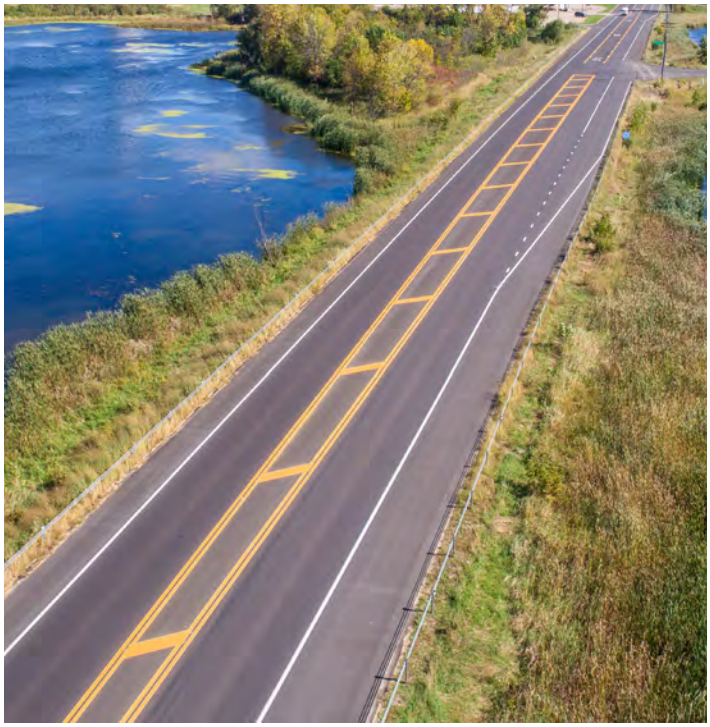


Figure 28 | *Widened shoulders along Highway 12 near Cokato, MN (Widseth)*

Considerations

- Safety edges can be installed on both asphalt and concrete roadways.
- The beveled surface should not be considered part of the usable paved shoulder width. This is particularly important when designing bikeable shoulders.

The safety edge is typically not implemented alone as a systemic measure, because it would be extremely difficult to get new safety edge pavement to bond to the existing pavement edge. However, it is appropriate for use as a standard design for any type of rural paving project, including overlays, pavement replacements, shoulder widening, and new construction. In these cases, the cost to add a safety edge is negligible and the benefit-cost ratio can be as high as 1500:150.

Strategies | Roundabouts

Purpose
Roundabouts reduce vehicle speeds, reduce high-speed collisions, and eliminate direct left turns.

Description
Roundabouts are circular intersections installed in areas with higher roadway volumes that are controlled by yield signage rather than a stop sign or illuminated signal light.

Applicable Street Types
Minor and major arterials and collectors.

Applicable Locations
Roundabouts can replace signalized intersections or be installed at intersections where signals are unwarranted. They can also be installed at:

- Intersections of local, collector, or arterial roadways.
- Intersections with high left-turning vehicle volumes.
- Intersections with more than four legs.
- An entrance to an area signifying a change in land use.

Safety Benefits
- Reduces motor vehicle through speeds by forcing motorists to maneuver around the island in the center of the roundabout
- Eliminates left-turn crashes.
- Reduces right-turn speed.
- Places emphasis on motorists yielding to all road users.

Figure 29 | *Aerial view of County Highway 77 Roundabout, Nisswa, MN (Widseth)*

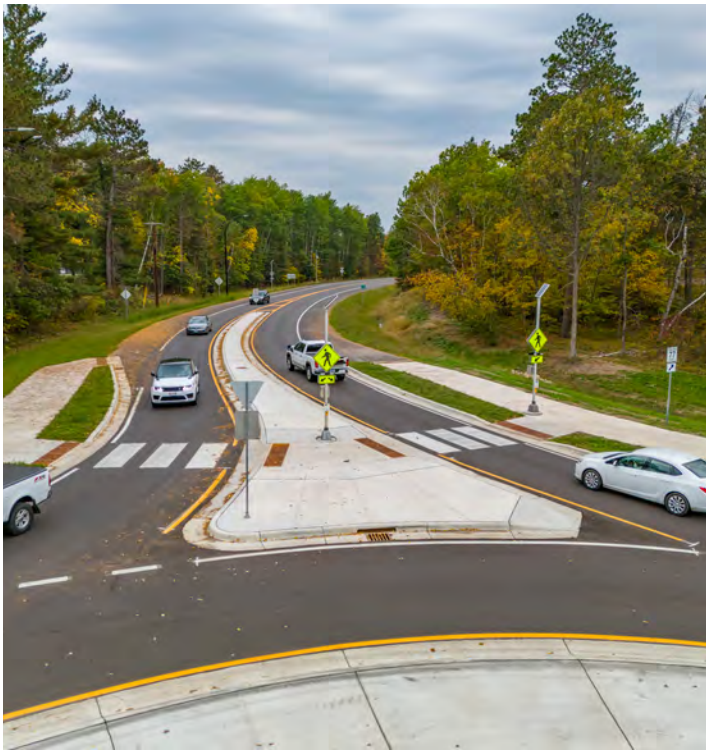


Figure 30 | *Pedestrian crosswalk at County Highway 77 Roundabout, Nisswa, MN (Widseth)*

Expected Crash Reduction

- 89% reduction in fatal crashes when converting a two-way stop-controlled intersection to a roundabout (FHWA-SA-07-015 U.S. DOT)
- 60% reduction in pedestrian crashes. (FHWA-SA-07-015 U.S. DOT)

Considerations

- Increasing turn radii for motor vehicles can compromise pedestrian and bicyclist safety.
- Chicanes or other traffic-calming treatments can be installed on adjacent roadways to slow traffic.
- Consider pedestrian and bicycle volumes, design features, number of lanes, and available rights of way.
- Wayfinding should be provided for motorists, pedestrians, and bicyclists.
- Multi-lane or higher-speed roundabouts may not be suitable for intersections with high pedestrian and bicyclist volumes.
- Roundabouts present unique challenges for individuals with visual and physical disabilities. Wayfinding and gap selection cues need to be adequately addressed in roundabout designs. Accessible pedestrian signals should also be considered.

Prioritization of Project Improvements | Scoring

Actions identified in the previous sections will help institutionalize the practices, policies, and programs that will make Red Cliff's streets safer for all residents. These actions will be complemented by on-the-ground safety improvement projects designed using Safe Systems Approach principles and strategies from the Safety Countermeasures Toolkit, and informed by the risk factors that were identified as part of the analysis performed during the project. Over time, the Tribe plans to address all risk factor issues with improved infrastructure design and safety practices.

Physical locations for projects were scored and ranked to prioritize where to focus early efforts for roadway improvements. The scoring factors described below determined the priority of these proposed solutions. The maximum total score is 12 points. Table 4 conveys the safety priority score for each location, ranking projects 1-13 (also shown in Figure 31) It should be noted that prioritization scoring is somewhat subjective. Projects with lower or no scores should still be analyzed for improvements as opportunities arise. It is suggested that the prioritized project are implemented first and are given the most funding, however, projects may be taken out of order as needs change or new funding opportunities arise.

Project	Speed Limit +40	Major/ Minor Routes	Community Concern Level	Intersection Related	Pedestrian Demand	Equity Score	Safety Priority Score	Priority
Shared Use Pedestrian Path along Blueberry Road	0	2	4	0	2	2	10	1
Shared Use Pedestrian Path along State Highway 13	1	2	3	0	2	2	10	2
Roundabout at Blueberry Road / State Highway 13/ Casino	0	2	3	1	1	1	8	3
Sand Salt Storage Shed	1	2	4	1	0	0	8	4
Pike Road & State Highway 13 Intersection Improvements	0	2	2	1	1	2	8	5
Aiken Road and State Highway 13 Intersection Improvements	1	2	2	1	1	1	8	6
Rural Intersection Lighting along Blueberry Road	1	1	1	1	0	0	4	7
Replace / Upgrade Signs (System Wide)	1	1	0	1	0	1	4	8
Remove Visual Trap Intersections	1	1	0	1	0	0	3	9
Realign Skewed Intersections	1	1	0	1	0	0	3	10
Paved Shoulders, Safety Edge, Rumble Strips and Enhanced Edgelines	0	0	1	0	.5	1	2.5	11
Widened Gravel Shoulders	0	0	1	0	.5	1	2.5	12
Sidewalk along New Housing Road	0	0	0	0	.5	0	2.5	13

Table 4 | *Project Scoring by Location*

- Speed Limit (1 point) - More than 40 mph on one or more approaches
- Major / Minor Routes (2 points) - Type, rate, and speed of traffic encountered in relation to vulnerable road users
- Community Concern Level (4 points) - Based on need of intervention as understood by Red Cliff community members
- Intersection Related (1 point) - Horizontal/vertical curvature, significant grade within the intersection skew, or obstacles in the line of sight.
- Pedestrian Demand (2 points) - Frequency of use and dependency for vulnerable users and community members
- Equity Score (2 points) - Reflects accessibility and use impacts for vulnerable users and community members

Projects were further ranked according to criteria that looked at potential costs, timeframe, and equity impacts as shown in Table 5 below. Each project was assigned a number based on the Safe System Hierarchy to provide additional strategies aimed at eliminating traffic-related fatalities and serious injuries. Short timeframe 1-5 years, Medium timeframe 5-10 years, and Long timeframe 10-20 years.

Priority	Project	Cost	Timeframe	Equity Impact	Safe System Hierarchy Tier	Community Concern Level
1	Shared Use Pedestrian Path along Blueberry Road	$$$	Short	High	1	High
2	Shared Use Pedestrian Path along State Highway 13	$$$	Short	High	1	High
3	Roundabout at Blueberry Road / State Highway 13/ Casino	$$$	Medium	Medium	1 & 2	High
4	Sand Salt Storage Shed	$	Short	Low	1	High
5	Pike Road & State Highway 13 Intersection Improvements	$$	Medium	Low	1 & 2	Medium
6	Aiken Road & State Highway 13 Intersection Improvements	$$	Medium	Low	1 & 2	Medium
7	Rural Intersection Lighting along Blueberry Road	$	Medium	Medium	4	Medium
8	Replace / Upgrade Signs (System Wide)	$	Short	Low	4	Low
9	Remove Visual Trap Intersections	$$	Long	Low	1	Low
10	Realign Skewed Intersections	$$	Long	Low	1	Low
11	Paved Shoulders, Safety Edge, Rumble Strips, and Enhanced Edgelines	$$	Medium	Low	1	Low
12	Widened Gravel Shoulders	$	Short	High	1	Low
13	Sidewalk along New Housing Road	$	Long	High	1	Medium

Table 5 | *Additional Project Scores*

Red Cliff Safety Study | Project Vicinity Map

The following pages include cut sheets for each of the 13 prioritized projects. These sheets provide detailed information on project timelines, cost ranges, and comprehensive descriptions of the proposed improvements. By outlining these key details, the cut sheets serve as essential tools for securing future funding opportunities, supporting grant applications, and guiding implementation efforts. See Appendix 1 for more information.

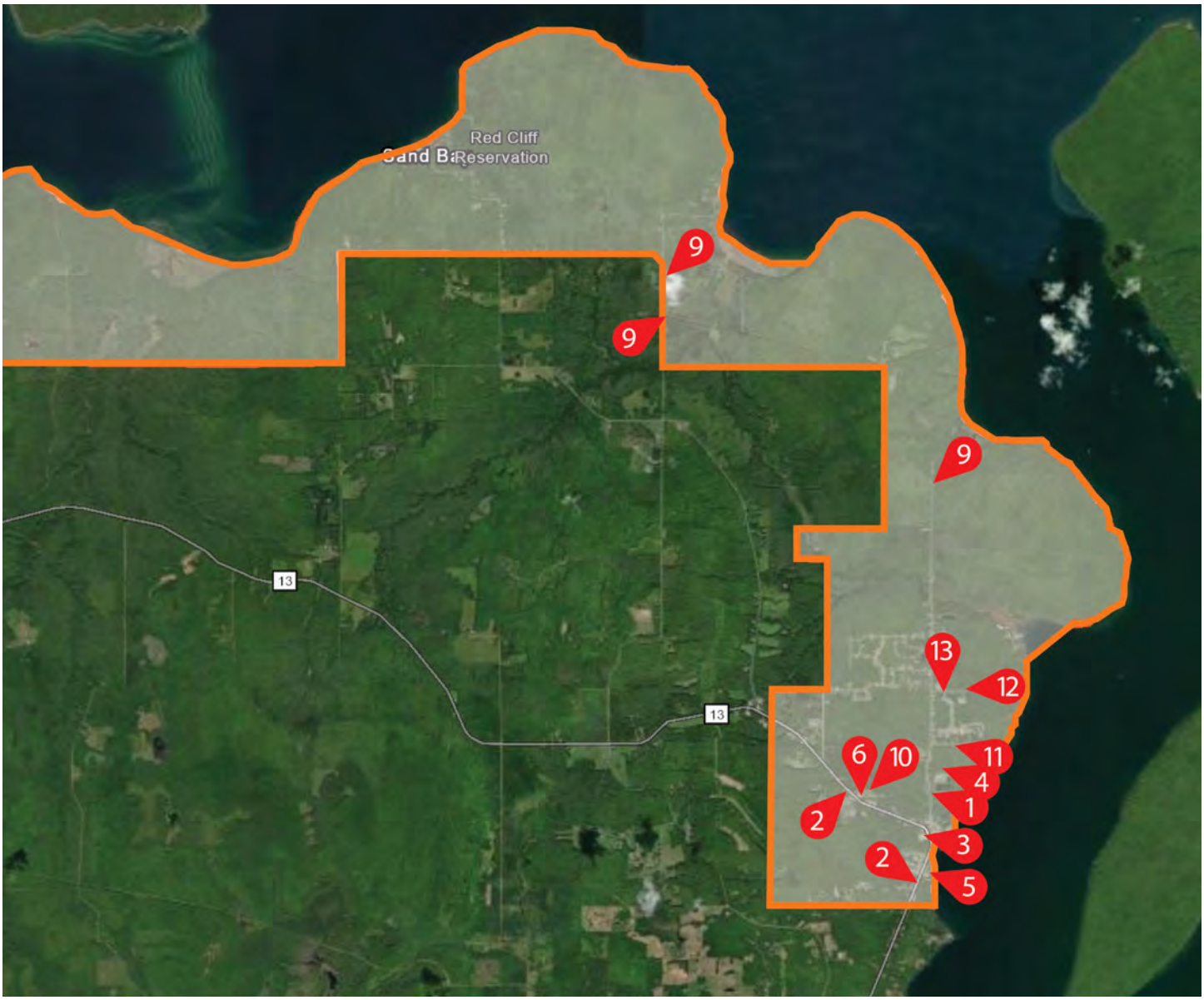


Figure 31 | *Red Cliff project locations (Widseth)*

SAFETY ACTION PLAN PROJECT LOCATIONS

1. Shared Use Pedestrian Path along Blueberry Road
2. Shared Use Pedestrian Path along State Highway 13 North to the Clinic
3. Roundabout at Blueberry Road / State Highway 13/ Casino
4. Sand Salt Storage Shed
5. Pike Road & State Highway 13 Intersection Improvements
6. Aiken Road & State Highway 13 Intersection Improvements
7. Rural Intersection Lighting along Blueberry Road
8. Replace / Upgrade Signs (System Wide)
9. Remove Visual Trap Intersections
10. Realign Skewed Intersections
11. Paved Shoulders, Safety Edge, Rumble Strips & Enhanced Edgeline
12. Widened Gravel Shoulders
13. Sidewalk along New Housing Road

Project 1 | Shared Use Pedestrian Path along Blueberry Road

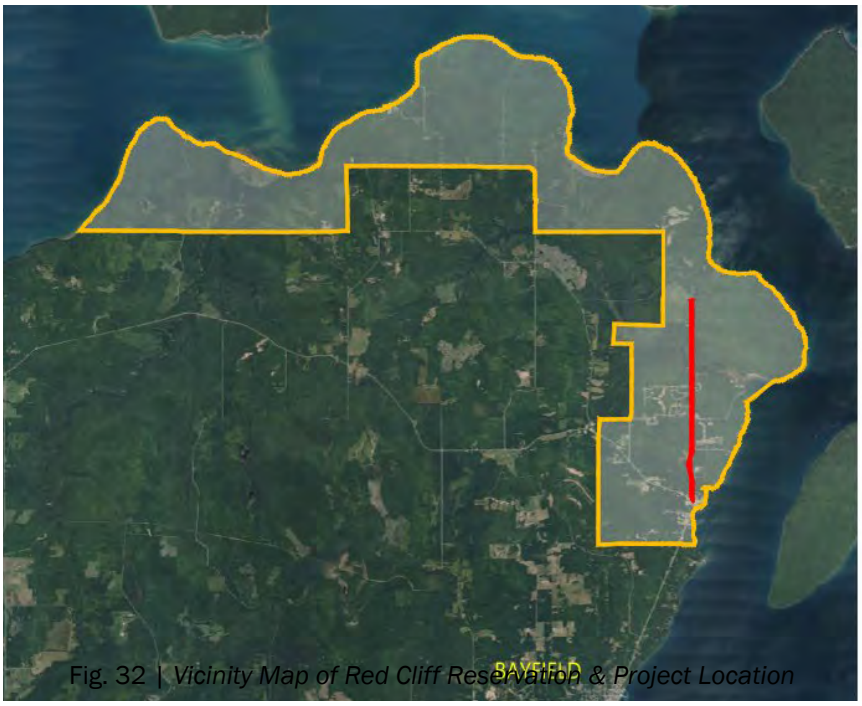


Fig. 32 | *Vicinity Map of Red Cliff Reservation & Project Location*

Fig. 32 | *Vicinity Map of Red Cliff Reservation & Project Location*

Description

Blueberry Road is a vital community connection between the main residential area, essential services, and key community destinations within the Red Cliff Reservation. This project is currently being studied in more detail through a Transportation Alternatives Program project and was identified as a high priority project by the Red Cliff community during the Safety Summit. There have been numerous fatal vulnerable user crashes on and along this corridor. The proposed project is consistent with FHWA Tier 1 guidance "Remove Severe Conflicts". See Page 20.

Statistical Information

- Safety Priority Score: 10
- Phasing: Short Term
- Consistent With Safe System Approach:

  1 - Remove Severe Conflicts
- Equity Impact: High
- Funding Source: SS4A / TTPSF TAP
- Approximate Cost: $2,800,000

Fig. 33 | *Map of Proposed Path*

Project 2 | Shared Use Pedestrian Path along State Highway 13

Fig. 34 | *Vicinity Map of Red Cliff Reservation & Project Location*

Description

State Highway 13 is a high-speed arterial roadway that bisects the Red Cliff reservation and connects the nearby City of Bayfield, located two miles to the east, with the far northwest boundaries of the reservation. All K-12 education at Red Cliff takes place in the City of Bayfield, which is also a major employment center for Red Cliff members. Currently, members who rely on non-motorized means to travel to school or work often walk or bike along the shoulder areas of this high-speed corridor to get to Bayfield. There has been one fatal vulnerable user crash on this corridor in recent years. The Red Cliff Community Health Center is also located along State Highway 13, and all vehicle and pedestrian traffic must use this high-speed roadway to access this vital community services area. Many members rely solely on walking or biking for their principal mode of transportation, and it is common for people to be seen using the shoulder of State Highway 13 to access the clinic. This project would construct a separated shared use pedestrian path along State Highway 13 from North Limits Road in Bayfield to Bradum Road located just north of the clinic. This pedestrian trail is currently being studied in more detail through a Transportation Alternatives Program project and was identified as a high priority safety concern by the Red Cliff community during the Safety Summit. The proposed trail is also consistent with FHWA Tier 1 guidance “Remove Severe Conflicts”.See Page 20.

Fig. 35 | *Map of Proposed Path*

Statistical Information

- Safety Priority Score: 10
- Phasing: Short Term
- Consistent With Safe System Approach:
  1 - Remove Severe Conflicts
- Equity Impact: High
- Funding Source: SS4A
- Approximate Cost: $2,800,000

Project 3 | Roundabout at Blueberry Road / State Highway 13 / Casino

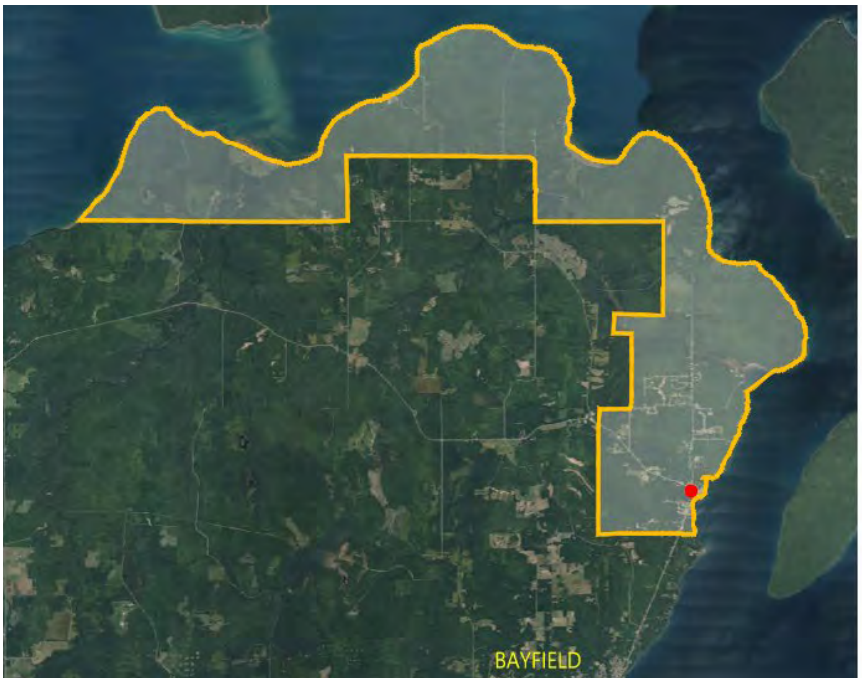


Fig. 36 | *Vicinity Map of Red Cliff Reservation & Project Location*

Fig. 37 | *Map of Proposed Intersection Improvements*

Description

The main traffic center of the Red Cliff Reservation is at the intersection of Blueberry Road and State Highway 13, which provides a direct connection to the Legendary Waters Resort & Casino and the Buffalo Bay Campground. This location has the additional safety risk of having the intersection built on a horizontal curve with marginal sight distance especially for eastbound State Highway 13 traffic. These factors, combined with steep vertical grade and higher speeds on this approach, require a method to reduce vehicle operating speeds and minimize the existing high crash and collision potential. Additionally, the primary access to the casino is less than 100 feet from this intersection, creating a confusing environment for drivers and pedestrians alike. The proposed project includes the construction of a 5-legged single lane roundabout that will provide efficient access to existing businesses and also for the new Buffalo Bay Gas Station and Convenience Store that is slated for construction in 2025. This project would provide a substantial safety benefit for vehicular traffic and community members who are crossing State Highway 13 to access the existing shared use pedestrian path leading to Red Cliff's Tribal Administration offices. The proposed project is consistent with FHWA Tier 1 guidance "Remove Severe Conflicts" and Tier 2 "Reduce Vehicle Speeds". See Page 20.

Statistical Information

- Safety Priority Score: 8
- Phasing: Medium Term
- Consistent With Safe System Approach:
  - 1 - Remove Severe Conflicts
  - 2 - Reduce Vehicle Speeds
- Equity Impact: Medium
- Funding Source: SS4A
- Approximate Cost: $2,000,000

Project 4 | Sand Salt Storage Shed

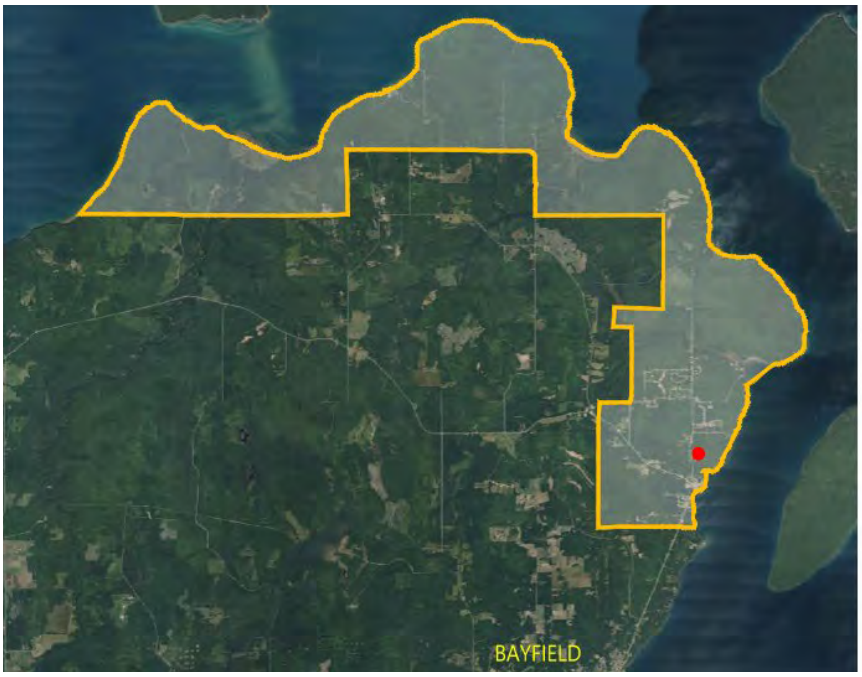


Fig. 38 | *Vicinity Map of Red Cliff Reservation & Project Location*

Fig. 39 | *Map of Proposed Intersection Improvements*

Description

Winter maintenance of tribal roads and local highways is a safety priority in Red Cliff, where significant snow and ice are abundant for extended periods of the year. Ensuring a readily available supply of salt and sand is a critical component of timely and effective snow and ice removal. Currently, Red Cliff does not have a storage facility for this material and must rely on partnerships with regional municipalities to procure limited quantities of salt and sand as needed during winter weather events. This project would construct a dedicated salt and sand storage facility at the Red Cliff Public Works Facility to mitigate this issue.

See Page 20.

Statistical Information

- Safety Priority Score: 8
- Phasing: Short Term
- Consistent With Safe System Approach:
  1 - Remove Severe Conflicts
- Equity Impact: Low
- Funding Source: SS4A
- Approximate Cost: $140,000

Project 5 | Pike Road & State Highway 13 Intersection Improvements

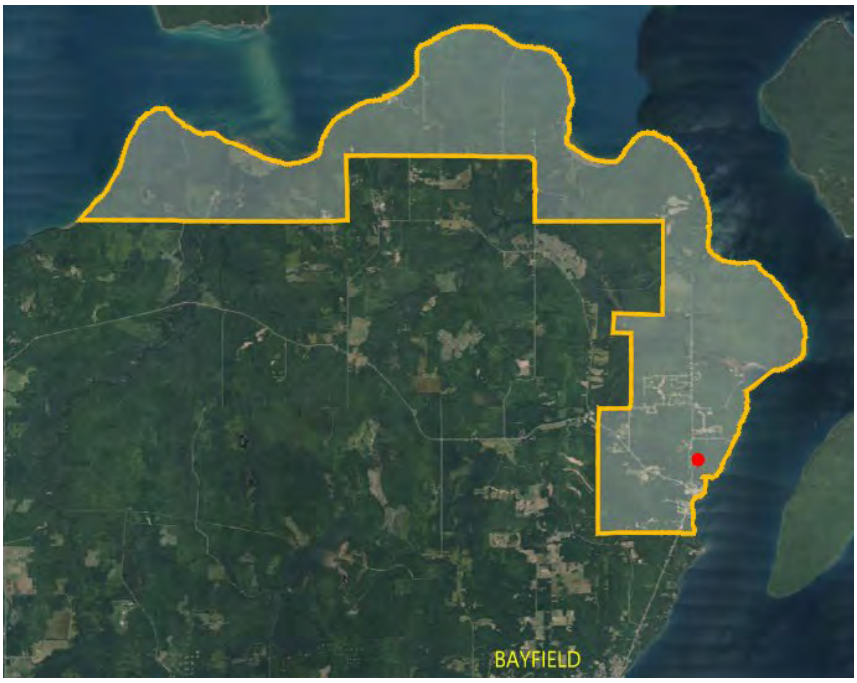


Fig. 40 | *Vicinity Map of Red Cliff Reservation & Project Location*

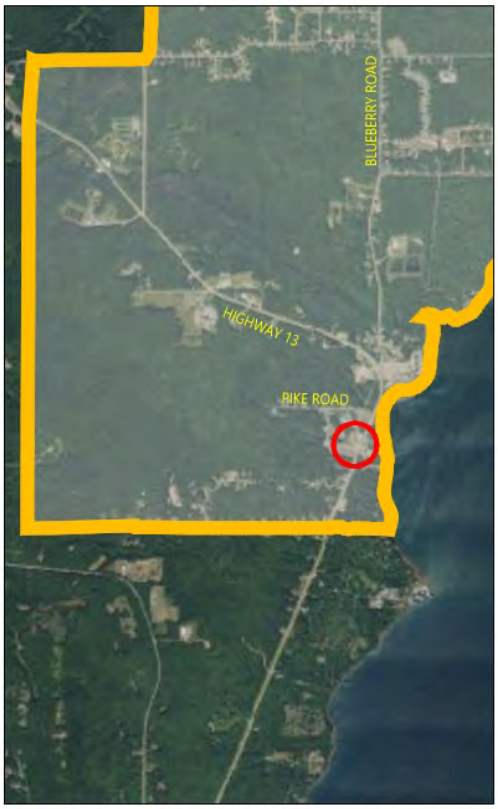


Fig. 41 | *Map of Proposed Intersection Improvements*

Description

There are two minor collector routes converging at the Pike Road/State Highway 13 intersection, creating a very wide and confusing intersection for both vehicles and pedestrians. This is directly adjacent to many essential services of Red Cliff including Family and Human Services, The Red Cliff Police Department, The Red Cliff Food Distribution Center, The Red Cliff Tribal Courts, Environment Services, and the Red Cliff Tribal Administration as well as several home-based businesses within and adjacent to the Community Road Housing Development. Red Cliff Administration building where members receive vital economic and other services. This project would realign and consolidate various roadways directly west of this intersection and includes the addition of an enhanced pedestrian crossing for State Highway 13. The proposed project is consistent with FHWA Tier 1 guidance "Remove Severe Conflicts" and Tier 2 "Reduce Vehicle Speeds". See Page 20.

Statistical Information

- Safety Priority Score: 8
- Phasing: Medium Term
- Consistent With Safe System Approach:
  - 1 - Remove Severe Conflicts
  - 2 - Reduce Vehicle Speeds
- Equity Impact: Low
- Funding Source: SS4A
- Approximate Cost: $300,000

Project 6 | Aiken Road & State Highway 13 Intersection Improvements

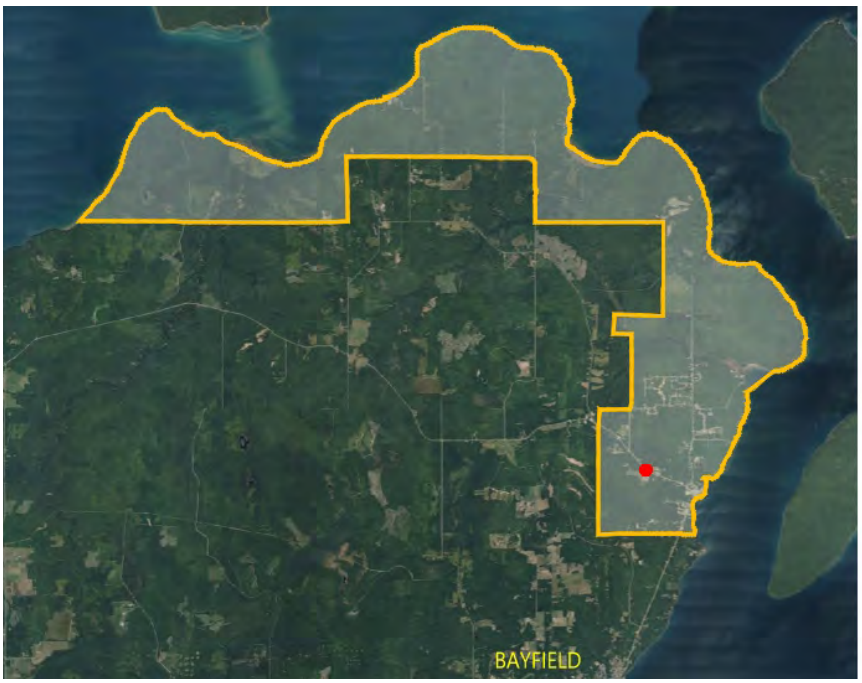


Fig. 42 | *Vicinity Map of Red Cliff Reservation & Project Location*

Fig. 43 | *Map of Proposed Intersection Improvements*

Description

Currently, this intersection is located within a high-speed section of State Highway 13. Located on the southwest side of State Highway 13 at this intersection is the Red Cliff Health Clinic, the Mino Bimaadiziiwin Tribal Farm, and a new Elder Housing Development. On the northeast side of State Highway 13 is the current Pow Wow Grounds, the Ginanda Gikendaasomin Library, and the Cultural Center. This intersection is located on a horizontal curve along State Highway 13, which creates visibility problems for users of Aiken Road, and is not aligned directly across and perpendicular creating a confusing intersection. Additionally, pedestrians do not currently have a safe way to cross State Highway 13 between the clinic and the Pow Wow Grounds, and there are currently no visual cues to drivers along State Highway 13 of the potential presence of pedestrians. This project would construct an enhanced pedestrian crossing and realign skewed entrance roads. The proposed project is consistent with FHWA Tier 1 guidance “Remove Severe Conflicts” and Tier 2 “Reduce Vehicle Speeds”. See Page 20.

Statistical Information

- Safety Priority Score: 8
- Phasing: Medium Term
- Consistent With Safe System Approach:
  - 1 - Remove Severe Conflicts
  - 2 - Reduce Vehicle Speeds
- Equity Impact: Low
- Funding Source: SS4A
- Approximate Cost: $400,000

Project 7 | Rural Intersection Lighting along Blueberry Road

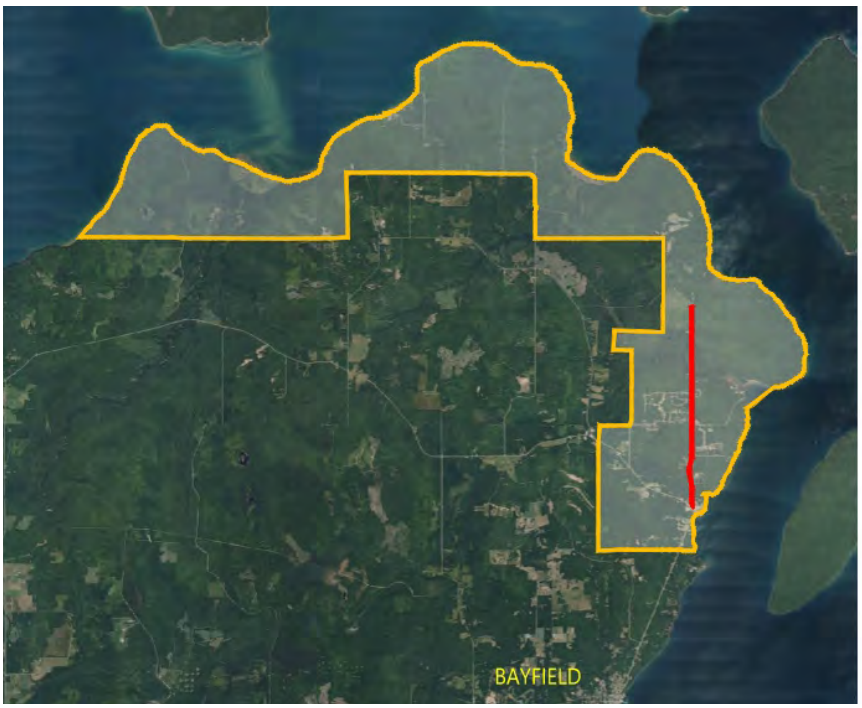


Fig. 44 | *Vicinity Map of Red Cliff Reservation & Project Location*

Description

Intersection lighting on Blueberry Road from State Highway 13 to North Bradum Road is intermittent and inconsistent, beyond that point, street lighting is non-existent. This project would install intersection lighting at key locations along this route, improving intersection safety. The proposed project is consistent with FHWA Tier 4 guidance "Increase Attentiveness/ Awareness". See Page 20.

Statistical Information

- Safety Priority Score: 4
- Phasing: Medium Term
- Consistent With Safe System Approach:

  4 - Increase Attentiveness/Awareness
- Equity Impact: Medium
- Funding Source: SS4A/ TTPSF
- Approximate Cost: $150,000

Fig. 45 | *Map of Proposed Lighting*

Project 8 **|** Replace / Upgrade Signs (System Wide)

Description

During the Red Cliff Safety Study, all existing highway signs were located and inventoried. This project would replace, relocate, or eliminate signs and sign supports consistent with the current Manual of Uniform Traffic Control Devices. This would include the removal of excessively used ineffective signs, while upgrading and adding signs such as chevrons, curve warning, and pedestrian crossing signs. This would also create guidance for future sign installation and maintenance across the entire Red Cliff Reservation. The proposed project is consistent with FHWA Tier 4 guidance "Increase Attentiveness/ Awareness". See Page 20.

Statistical Information

- Safety Priority Score: 4
- Phasing: Short Term
- Consistent With Safe System Approach:
  4 - Increase Attentiveness/Awareness
- Equity Impact: Low
- Funding Source: SS4A/TTPSF
- Approximate Cost: $90,000

Project 9 | Remove Visual Trap Intersections

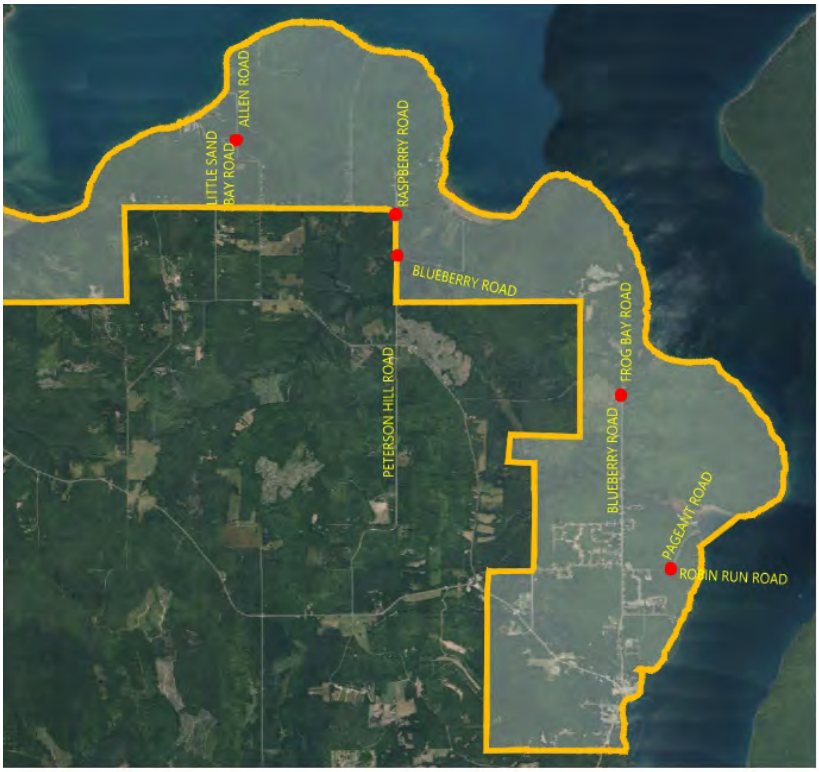


Fig. 46 | *Vicinity Map of Red Cliff Reservation & Project Location*

Description

A total of five (5) visual traps were identified which pose a significant risk to drivers in that it creates the illusion that a roadway continues straight when in fact the primary roadway curves leading to drivers misjudging the roadway. The Red Cliff Safety Study identified these five intersections and include: Blueberry Road/Frog Bay Road, Blueberry Road/ Peterson Hill Road, Blueberry Road/Raspberry Road, Little Sand Bay Road/ Allen Road, and Pageant Road/Robin Run Road. These projects would realign the minor road to tee into the main road along the outside of the curve or on either side of the curve. This project could be combined with Project 8 and a portion of Project 9. The proposed project is consistent with FHWA Tier 1 guidance "Remove Severe Conflicts". See Page 20.

Statistical Information

- Safety Priority Score: 3
- Phasing: Long Term
- Consistent With Safe System Approach:
  1 - Remove Severe Conflicts
- Equity Impact: Low
- Funding Source: SS4A
- Approximate Cost: $800,000

Project 10 | Realign Skewed Intersections

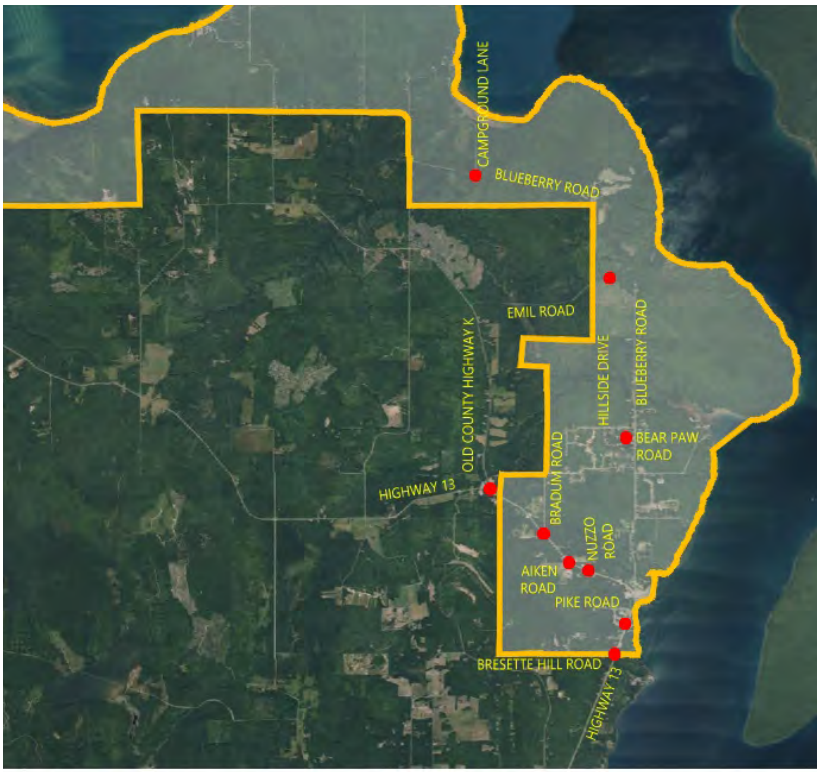


Fig. 47 | *Vicinity Map of Red Cliff Reservation & Project Location*

Description

Skewed intersections present unique challenges to drivers. This project identified numerous intersections with skews greater than 10 degrees, including the following:

- West Bresette Hill Road / Bresette Hill Road
- State Highway 13/ Pike Road
- State Highway 13/ Nuzzo Road
- State Highway 13/ Aiken Road
- State Highway 13/ Bradum Road
- State Highway 13/ Old County Highway K (just outside the reservation boundary)
- Blueberry Road / Emil Road
- Blueberry Road / Campground Lane
- Hillside Drive / Bear Paw Road

The proposed project is consistent with FHWA Tier 1 guidance "Remove Severe Conflicts" See Page 20.

Statistical Information

- Safety Priority Score: 3
- Phasing: Long Term
- Consistent With Safe System Approach:
  1 - Remove Severe Conflicts
- Equity Impact: Low
- Funding Source: SS4A
- Approximate Cost: $900,000

Project 11 **|** Paved Shoulders, Safety Edge, Rumble Strips & Enhanced Edgeline

Description

When combined these strategies significantly improve rural highway safety in addressing run off the road crashes. These strategies should be implemented on the upcoming project on Blueberry Road and on all future paving projects within the reservation. It was identified that the north end of the existing Little Sand Bay Road is a great example with the addition of rumble stripes. The proposed project is consistent with FHWA Tier 1 guidance "Remove Severe Conflicts". See Page 20.

Statistical Information

- Safety Priority Score: 2.5
- Phasing: Medium Term
- Consistent With Safe System Approach:
  1 - Remove Severe Conflicts
- Equity Impact: Low
- Funding Source: Routine
- Approximate Cost: $100,00/mile

Project 12 | Widened Gravel Shoulders

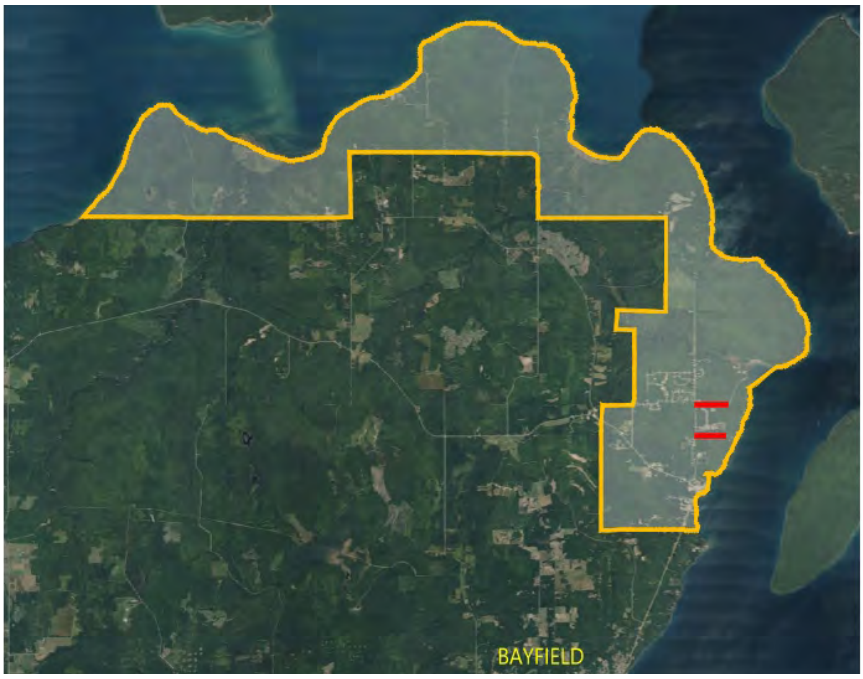


Fig. 48 | *Vicinity Map of Red Cliff Reservation & Project Location*

Description

It was identified that there are existing turf shoulders that exist in rural sections that are difficult for pedestrians to utilize with their uneven surface. This is very low-cost strategy and could easily be implemented along Bishop Lane and Pageant Road, providing an area for pedestrians to walk outside of the paved driving surface on low-speed roadways. The proposed project is consistent with FHWA Tier 1 guidance "Remove Severe Conflicts". See Page 20.

Statistical Information

- Safety Priority Score: 2.5
- Phasing: Short Term
- Consistent With Safe System Approach:

  1 - Remove Severe Conflicts
- Equity Impact: High
- Funding Source: SS4A
- Approximate Cost: $40,000

Fig. 49 | *Map of Shoulder Improvements*

Project 13 | Sidewalk along New Housing Road

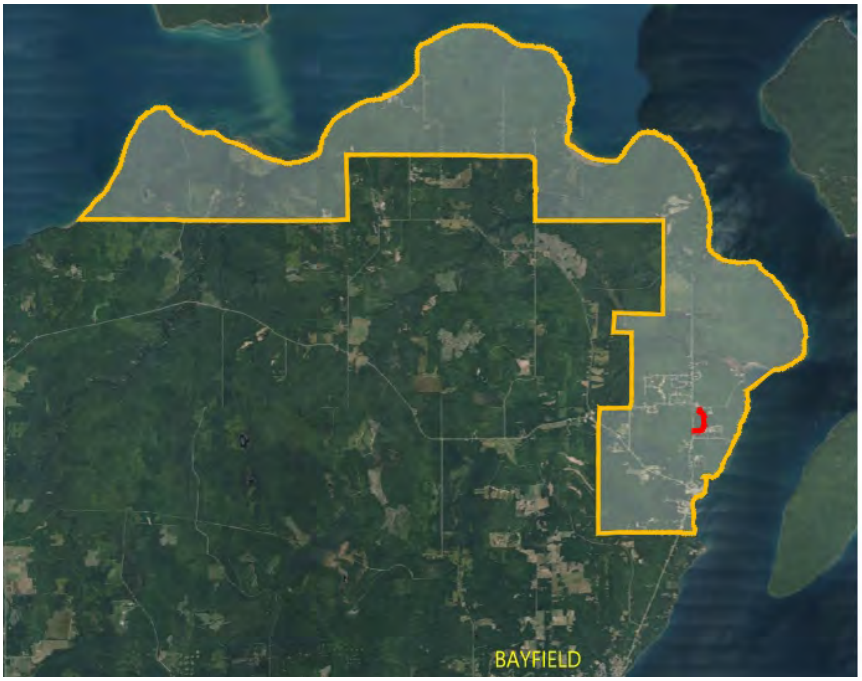


Fig. 50 | *Vicinity Map of Red Cliff Reservation & Project Location*

Description

There is dense housing on New Housing Road combined with narrow streets and no designated pedestrian infrastructure. This project would construct a sidewalk in this residential area, including safe crossings of New Housing Road. The proposed project is consistent with FHWA Tier 1 guidance "Remove Severe Conflicts". See Page 20.

Statistical Information

- Safety Priority Score: 2.5
- Phasing: Long Term
- Consistent With Safe System Approach:

  1 - Remove Severe Conflicts
- Equity Impact: High
- Funding Source: SS4A
- Approximate Cost: $200,000

Fig. 51 | *Map of Proposed Sidewalk*

Chapter 6

Implementation

Progress & Transparency

Safety Improvement Strategies

Safety Improvement Strategies | Shared Use Pedestrian Path

Relevant Projects: 1 2

Figure 52 | *Blueberry Road currently has narrow shoulders bordered by steep, vegetated slopes on both sides. As a result, pedestrians and cyclists are forced to share the roadway with fast-moving vehicles, creating a hazardous situation. (Terra Soma)*

Figure 53 | *Adding a shared-use path along one side of Blueberry Road would provide a safe and dedicated space for pedestrians and cyclists. A landscaped buffer between the path and the roadway would enhance safety by clearly separating non-motorized users from vehicular traffic and improving the overall aesthetics of the corridor. (Terra Soma)*

Safety Improvement Strategies | Median Refuge Island at Peterson's Crossing

Relevant Projects: 5 6

Figure 54 | *Peterson's Crossing is a high-traffic stop along State Highway 13. A paved path runs alongside the southbound lane, while a concrete sidewalk serves northbound pedestrians. However, pedestrian signage is limited, and the area lacks pavement markings and curb cuts, creating accessibility and safety concerns. (Terra Soma)*

Figure 55 |*Proposed improvements at Peterson's Crossing aim to enhance visibility and safety for pedestrians and cyclists through the addition of roadway markings, a raised center median, curb cuts, and increased signage. (Terra Soma)*

Figure 56 |*Existing intersection at State Highway 13 and Blueberry Road (Terra Soma)*

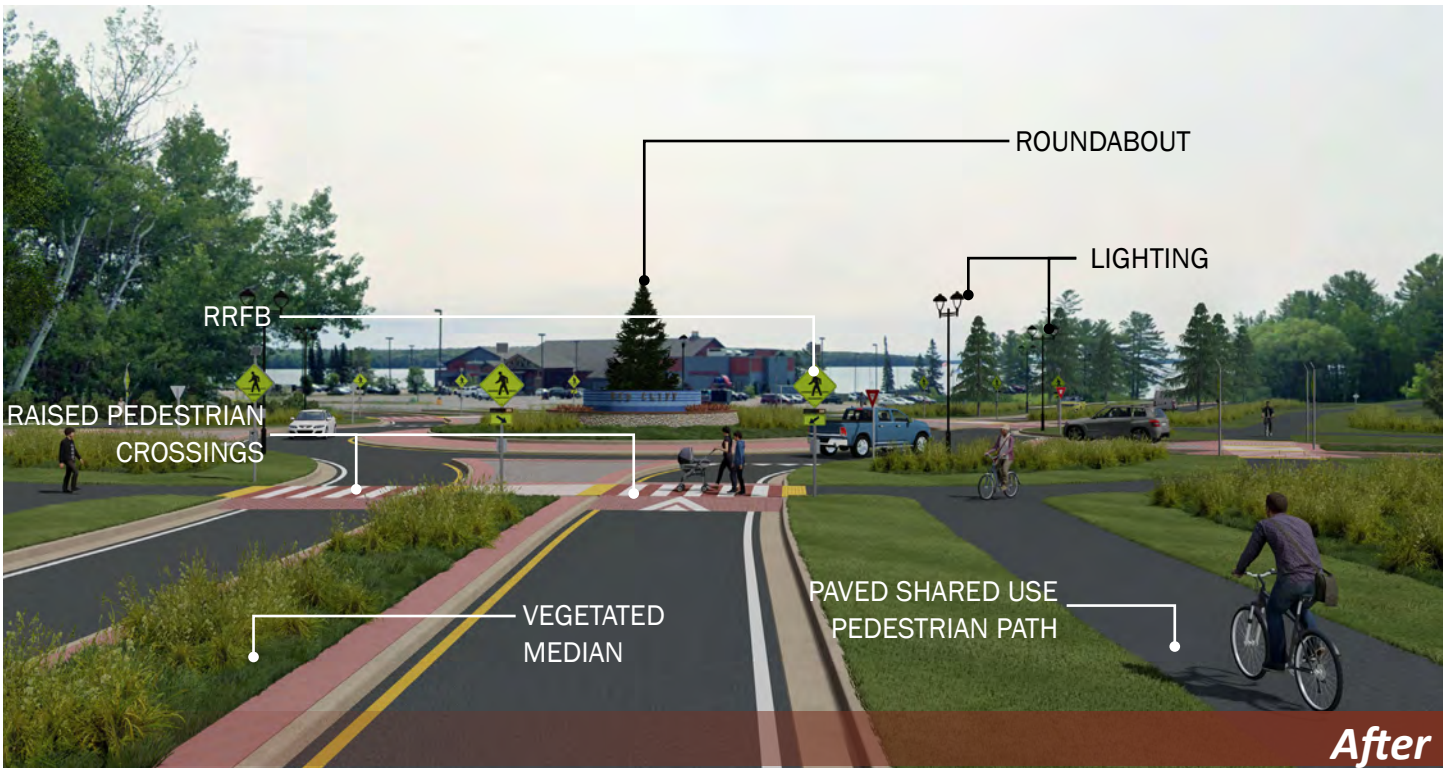


Figure 57 |*Proposed improvements at State Highway 13 and Blueberry Road would include removal of existing horizontal curvature, enhanced median, signage, lighting, paved shared use pedestrian path, raised crosswalks, and roundabout (Terra Soma)*

Appendices

Appendix 1

Presentation Day 1

Presentation Day 2

Presentation Day 3

Safety Summit Summary

DAY 1

ROAD SAFETY SUMMIT

Government Partners Roundtable 1:00PM – 2:30PM

Technical Walking Audit 2:30-4:00PM

ROAD SAFETY SUMMIT

Community Roundtable 2:00PM – 4:00PM

ROAD SAFETY SUMMIT

Visioning Workshop 5:00PM – 7:00PM


OJIBWEMOWIN PRAYER
~ MARK GOKEE ~
RED CLIFF LANGUAGE
COORDINATOR

Why is Red Cliff doing a Comprehensive Tribal Transportation Safety Action Plan?

Project Team

Morgan Gerk
Jeff Benton

Red Cliff Road Safety Team

Samantha Lorenz

Terra Soma

Dean Chamberlain

Toole Design

Tracey Von Bargen

Widseth

Eleanor Brandt

Widseth

Group Introductions

- Name / Organization
- What is your connection to road safety?
- What has impacted you or your views?

What is a Road Safety Action Plan?

SS4A plans helps guide local agencies including tribal nations to reach zero road deaths and serious injuries by a target year through a proven planning process…

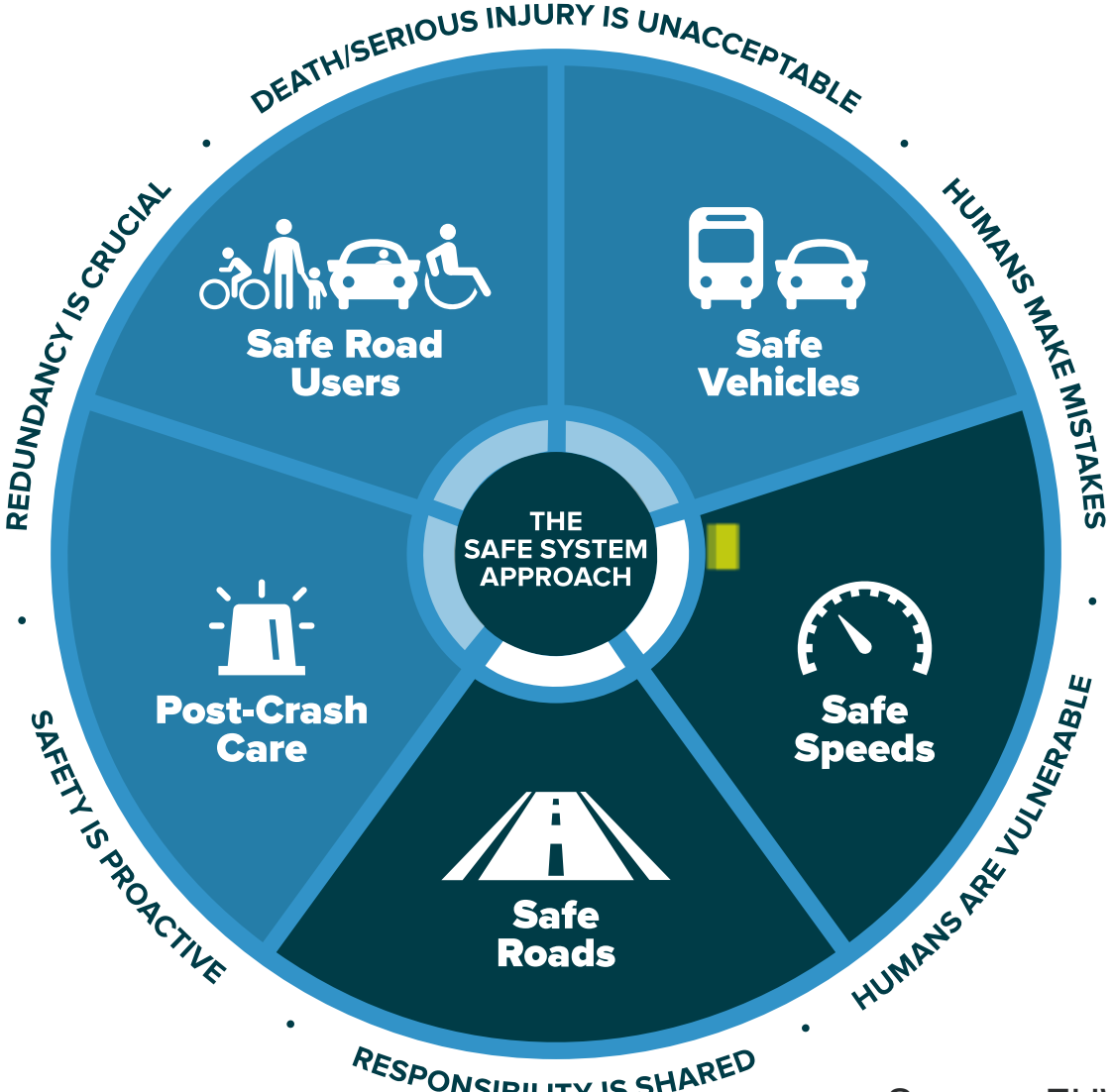
USDOT Safe Streets and Roads For All (SS4A)

SS4A Action Plan Components:

- Leadership Commitment & Goal Setting
- Planning Structure
- Safety Analysis
- Engagement & Collaboration
- Equity Considerations
- Policy & Process Changes
- Strategy & Project Selection
- Progress & Transparency

Safe System Approach

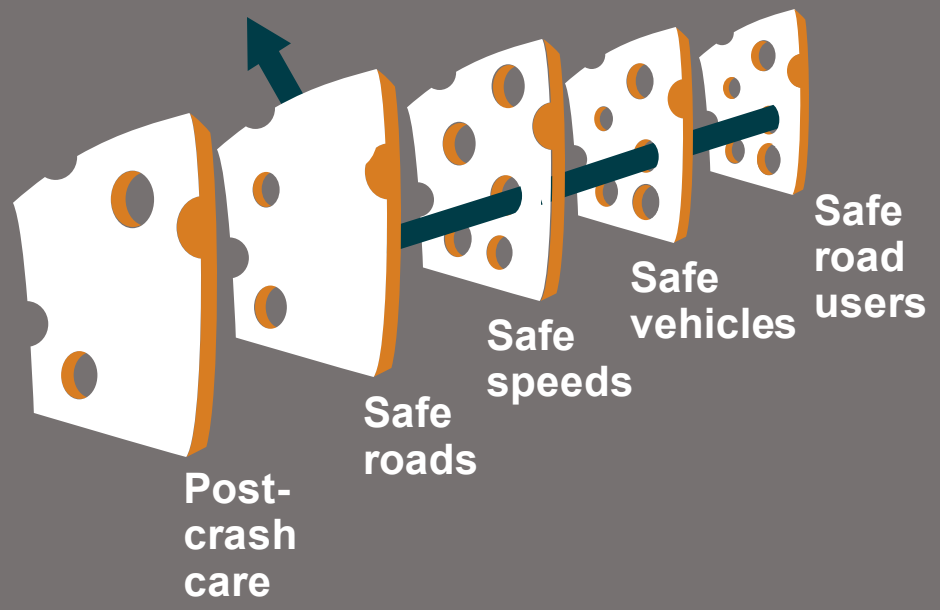
- The Safe Systems Approach **places safety first and foremost** in road investment decisions.



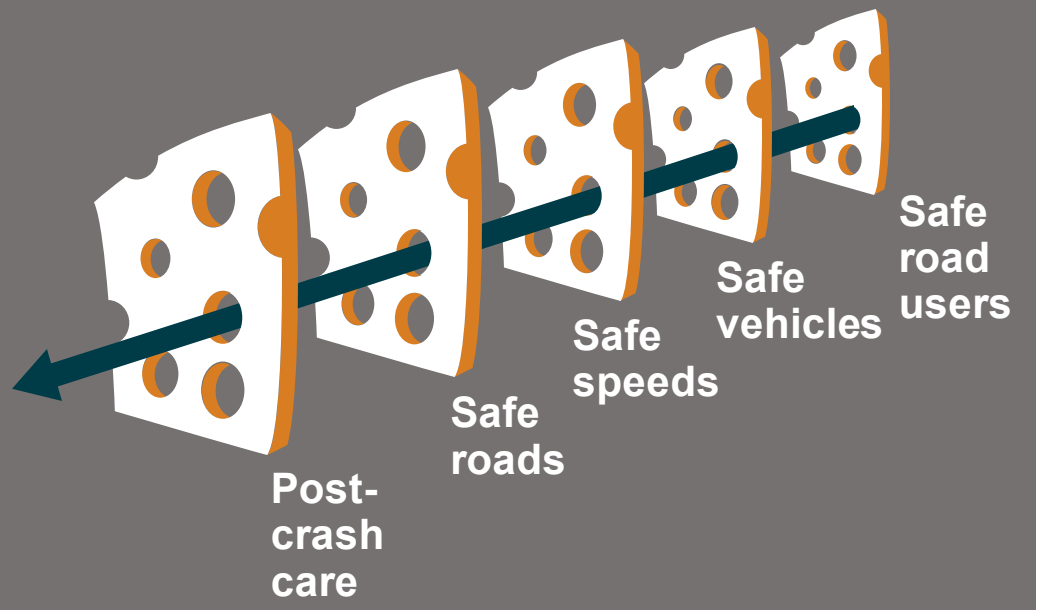
Source: FHWA

The Safe System Elements Create Redundancy

The “Swiss Cheese Model” of redundancy creates layers of protection



Death and serious injuries only happen when all layers fail



Source: https://en.m.wikipedia.org/wiki/File:Swiss_cheese_model_of_accident_causation.png

Why is Red Cliff doing a Safety Action Plan?

- Why a Safety Summit?
- Why a roundtable?
- Why a walking audit?

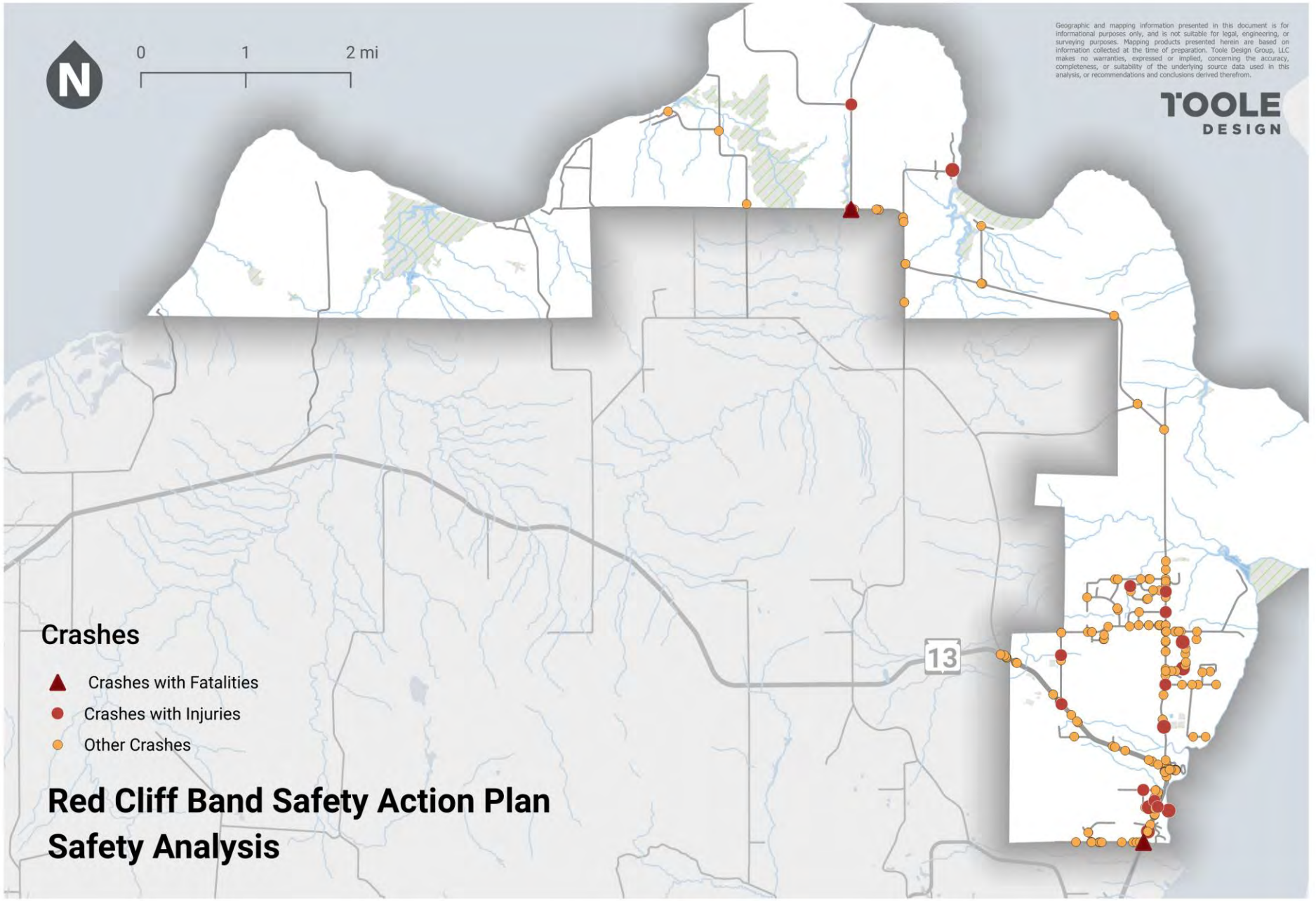
Purpose & Goals

Develop a comprehensive plan with actionable goals ready for immediate adoption and implementation.

Safety Analysis

Basic Safety Analysis Questions

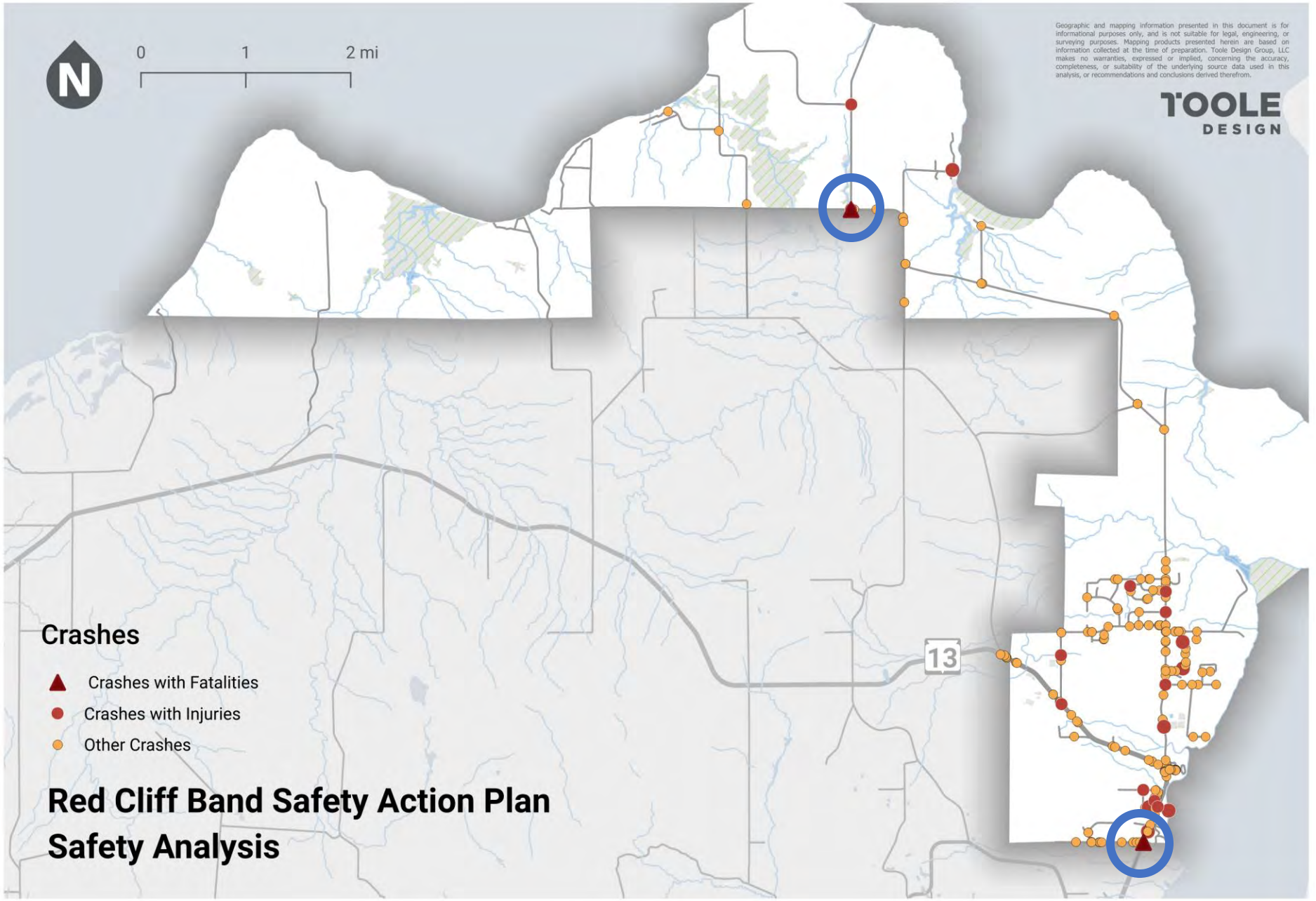
- Who (was affected)?
- What (happened)?
- Where (did the crashes occur)?
- Why (did the crashes happen)? (or, what contributed to the crashes occurring?)
- How (can we fix it)?



Where?

2014-2023 Crash Data

Data from Red Cliff Police Department and WisTransPortal



Where?

Fatal Crash Locations Circled in Blue

Where did the crashes occur?

- Fatal Crash Locations
  - Blueberry Road at Eagle Bay Road – 12/29/2014
    - Limited data available – reach out to the team if you know more!
  - Highway 13 at Bresette Hill Road – 8/2/2023
    - Police vehicle hit person walking in northbound travel lane
    - Person walking on phone

Where?

Injury crash locations along Highway 13 circled in yellow

Area of new development without crash history but of concern circled in orange

Where did the crashes occur?

- Injury Crash Locations – South Area
  - Pike Road (Various Locations) (3)
  - 37315 Community Road
  - 37550 Dock Road

Where did the crashes occur?

- Injury Crash Locations – Middle Area
  - New Housing Road (Various Locations) (4)
  - Pageant Road (Unknown Location)
  - Bradum Road at Egizaa Drive
  - Daley Road (Unknown Location)
  - Hillside Drive west of Bear Paw Road

Where did the crashes occur?

- Injury Crash Locations – North/Outer Area
  - Eagle Bay Road at Point Detour Drive
  - 94400 Raspberry Shore Drive

Who was affected?

- Limited data available
- 30 fatal or injury crashes in last 10 years
- At least 2 involved someone walking (including one of the fatal crashes)
  - Crashes involving vulnerable road users (people walking, biking, or using personal mobility devices) tend to be more severe than those only involving vehicles

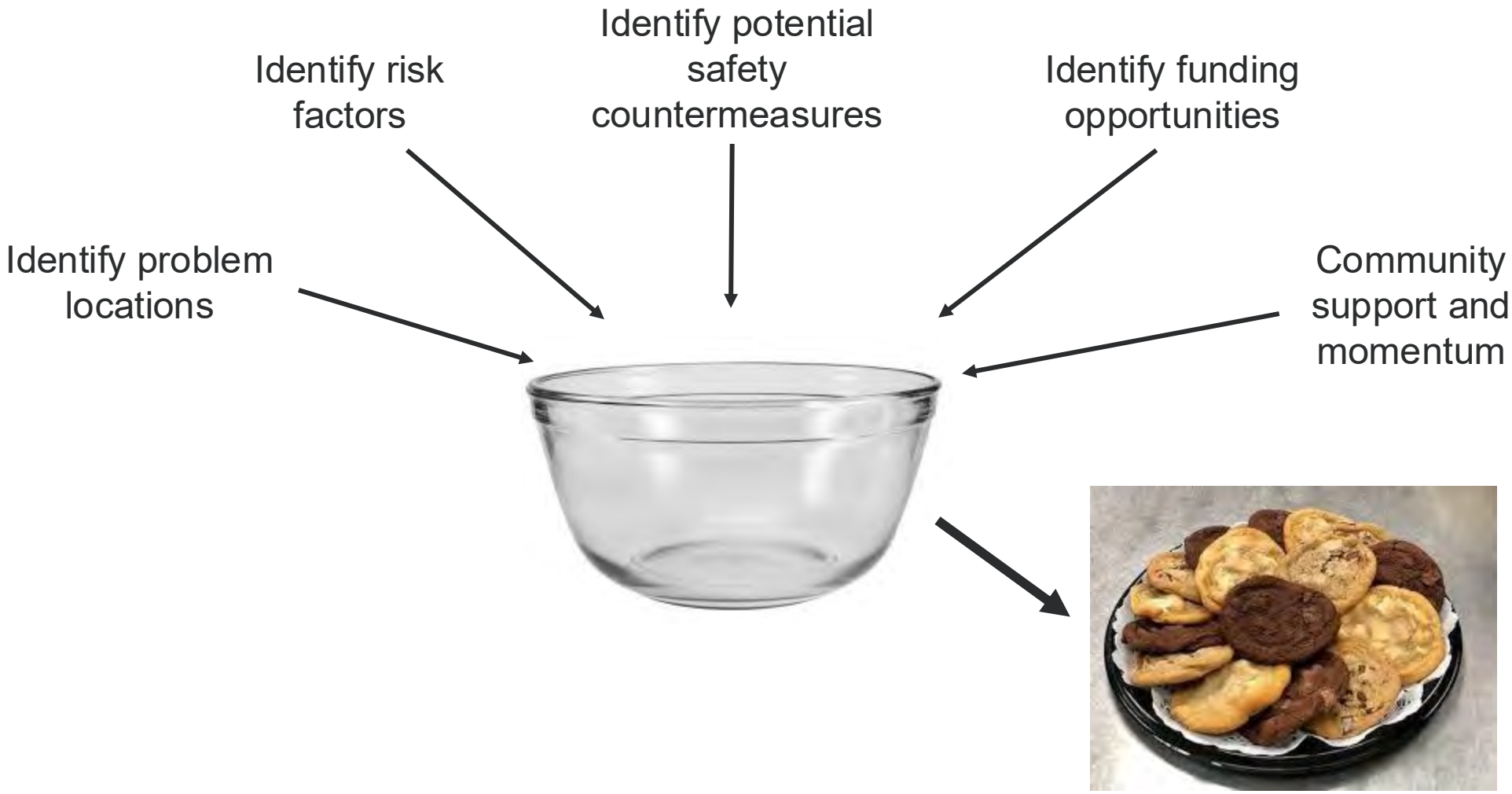
What happened?

- Limited data available
- Most injury crashes involved two parties (not single vehicle run-off-road)
- No injury crashes involved animals
- At least 2 high speed rear ends on Highway 13
- At least one angle ("t-bone") crash (Highway 13 at Pike Road)
- At least one head on crash (Blueberry Road at Bear Paw Road)

Why did the crashes happen?

- Analyzing risk factors
  - Traffic speed?
  - Roadway geometry?
  - Environmental factors?
  - Cultural factors?
  - Lack of facilities for people walking and biking?

How can we fix it?



How can we fix it?

- Potential Safety Countermeasures
  - Roundabouts
  - Pedestrian crossing treatments (RRFBs, refuge medians, curb extensions)
  - Add walking/biking facilities
  - Curve warnings (chevrons, guardrails, rumble strips)
- Proactive Thinking
  - Build safety into new projects, policies, etc. rather than waiting for crashes to happen

DISCUSSION

Topic 1: Challenges

- What do you see as the biggest road safety challenges?
- What specific road safety concerns do you encounter in your daily travels?
- What do you think are the most common risks on the road for drivers, pedestrians, cyclists, and other wheeled users?

Topic 2: Road Design

- What speed management and safety measures have been taken?
- What measures can we take?

Topic 3: Engagement, Enforcement & Education

- What initiatives are in place to educate the community about road safety?
- How do community members provide feedback or report safety concerns regarding local roads?
- What role does law enforcement play in promoting road safety, how can efforts be enhanced?
- What types of community initiatives would help promote road safety?

Topic 4: Future Vision

- What do you envision for the future of road safety?
- How might roads in Red Cliff be safe, comfortable and inviting for all transportation users, all people?
- What improvements would you like to see?

Topic 5: Implementation

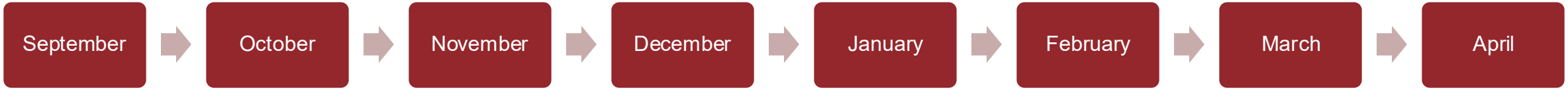
- What policies and programs does your agency or organization have in place in relation to road safety? How might this support Red Cliff's effort?
- What funding or resource timeframes should we be aware of?

REFLECTION

- What is coming clear to you based on what we've been discussing?

What's Next?

Schedule



Safety Analysis

Engagement and Collaboration

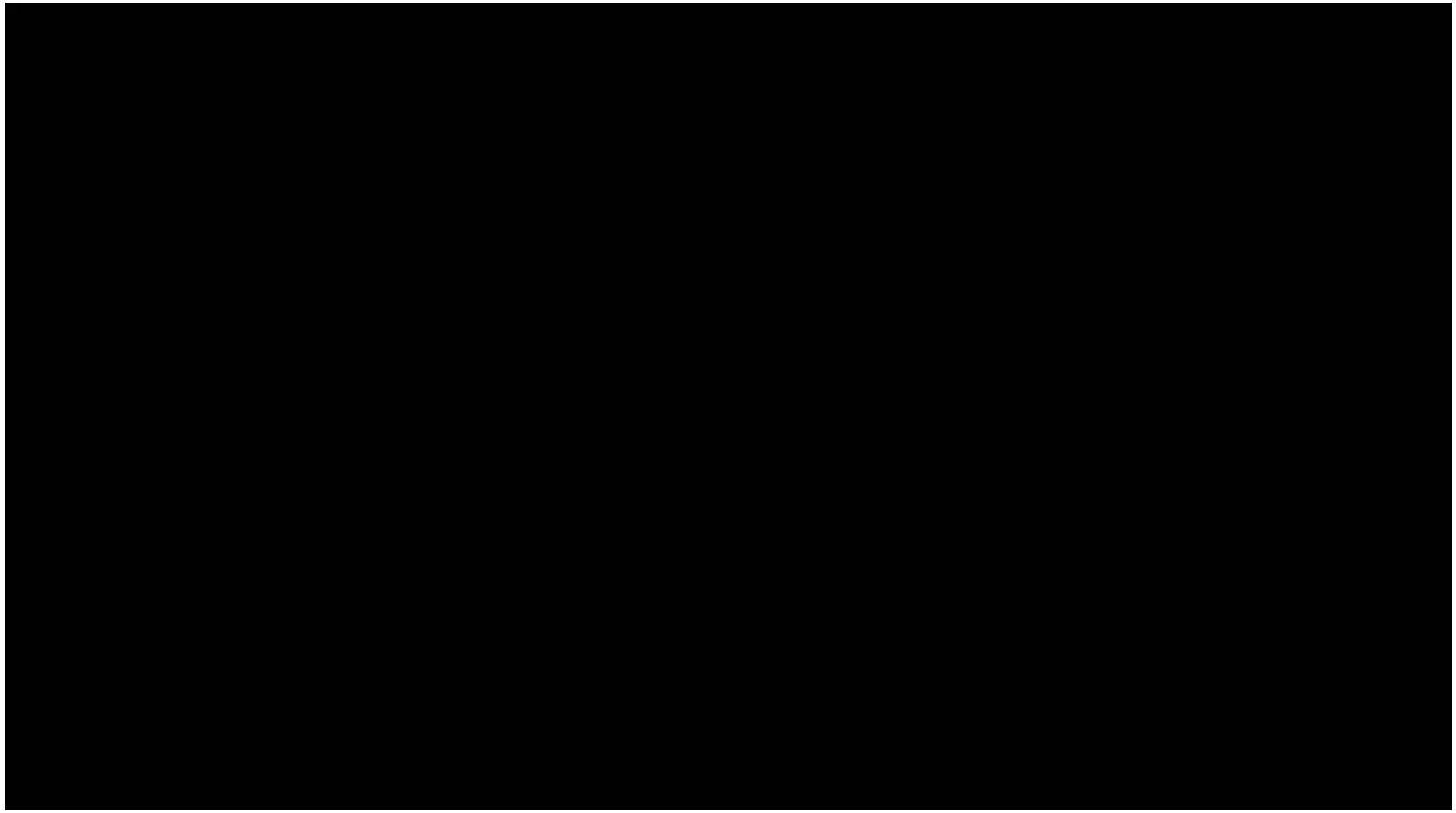
Strategy and Project Selections

Progress and Transparency

Final Plan

Any Questions?

LEARNING FROM: Lummi Nation (WA)



Lummi Nation Haxton Way Pedestrian Path and Lighting Project https://www.youtube.com/watch?v=ltR2oiQ3R9Q

LEARNING FROM: Lummi Nation (WA)

Image credit: Google Earth

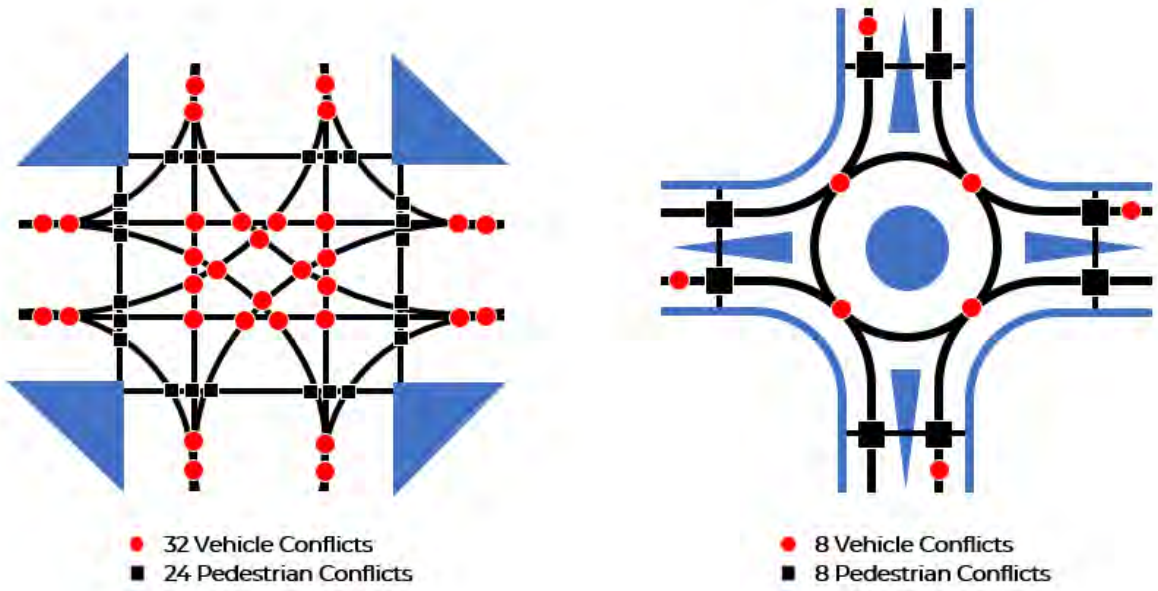
LEARNING FROM: The Confederated Tribes of the Chehalis Reservation (WA)

Image credit: The Confederated Tribes of the Chehalis Reservation

LEARNING FROM: Oneida Nation (WI)

Image credit: Google Earth

CONFLICT POINTS



CASE STUDY

DAY 2

ROAD SAFETY SUMMIT

Community Roundtable 2:00PM – 4:00PM

ROAD SAFETY SUMMIT

Visioning Workshop 5:00PM – 7:00PM


OJIBWEMOWIN PRAYER
~ MARK GOKEE ~
RED CLIFF LANGUAGE
COORDINATOR

Why is Red Cliff doing a Safety Action Plan?

- What other actions are happening toward road safety?

Project Team

Morgan Gerk
Jeff Benton

Red Cliff Road Safety Team

Samantha Lorenz

Terra Soma

Dean Chamberlain

Toole Design

Tracey Von Bargen

Widseth

Eleanor Brandt

Widseth

Group Introductions

- Name
- What is your connection to road safety?
- What has impacted you or your views?

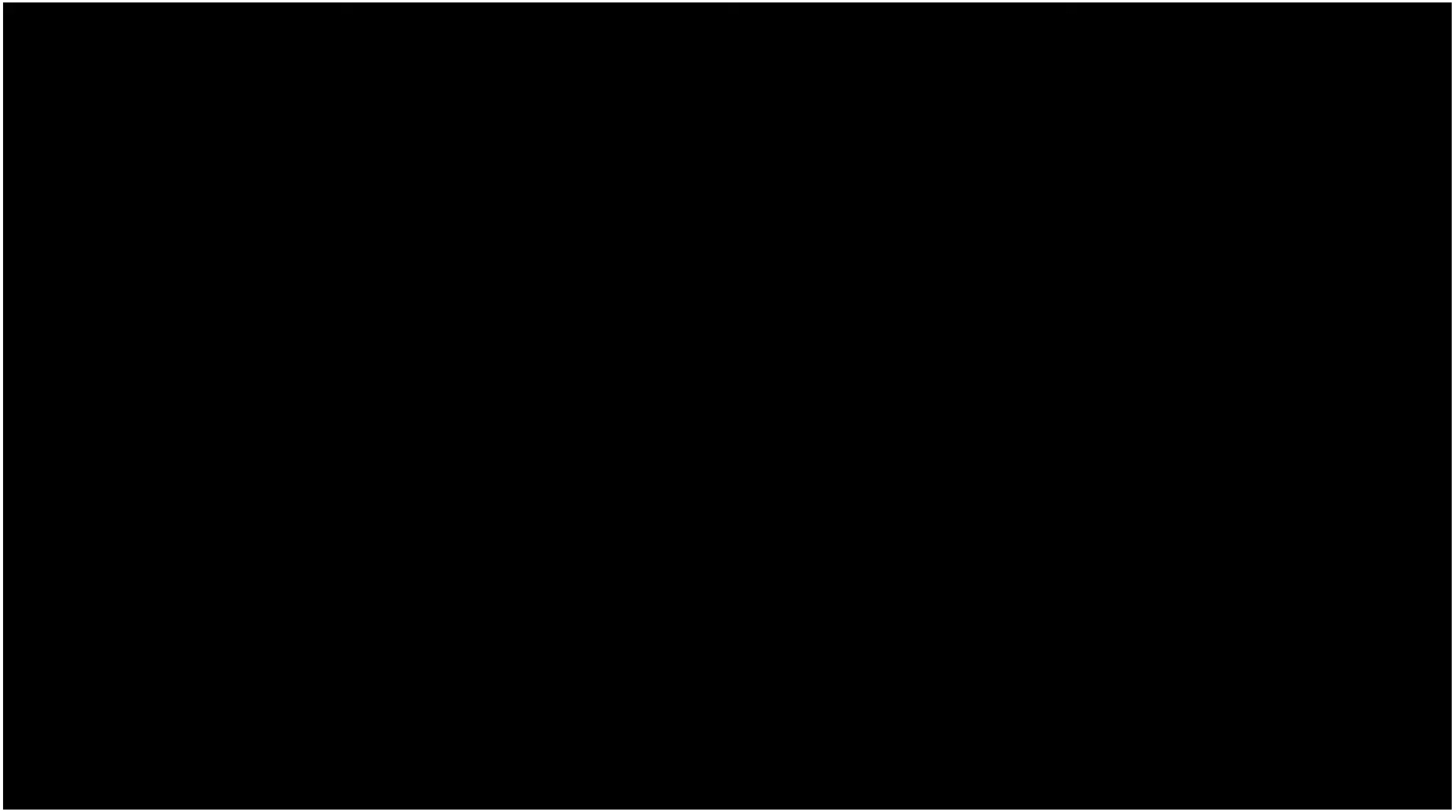
What is a Road Safety Action Plan?

SS4A plans helps guide local agencies including tribal nations to reach zero road deaths and serious injuries by a target year through a proven planning process.

Safe System Approach

- The Safe Systems Approach **places safety first and foremost** in road investment decisions.

Source: FHWA

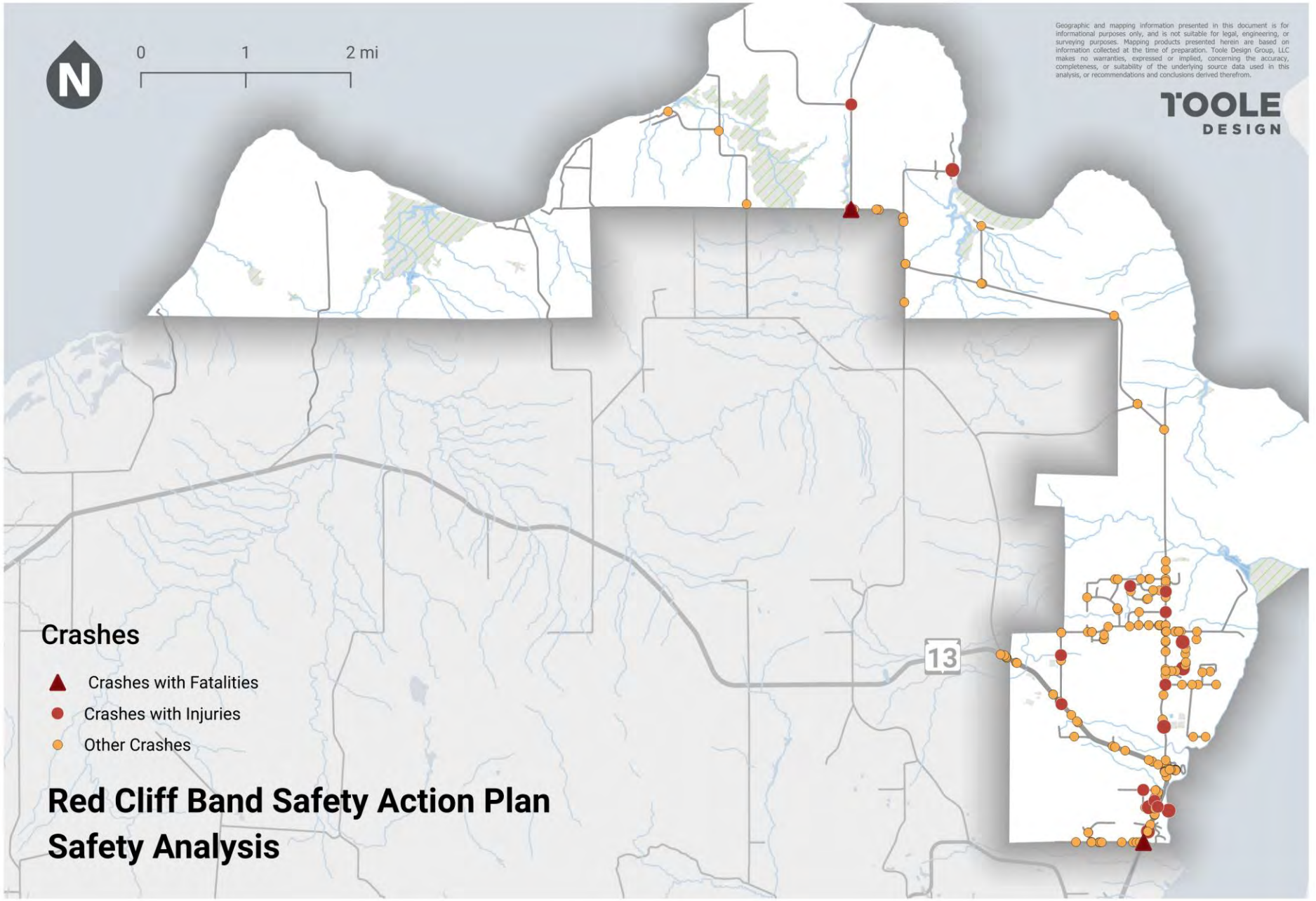


Lummi Nation Haxton Way Pedestrian Path and Lighting Project https://www.youtube.com/watch?v=ltR2oiQ3R9Q

Safety Analysis

Basic Safety Analysis Questions

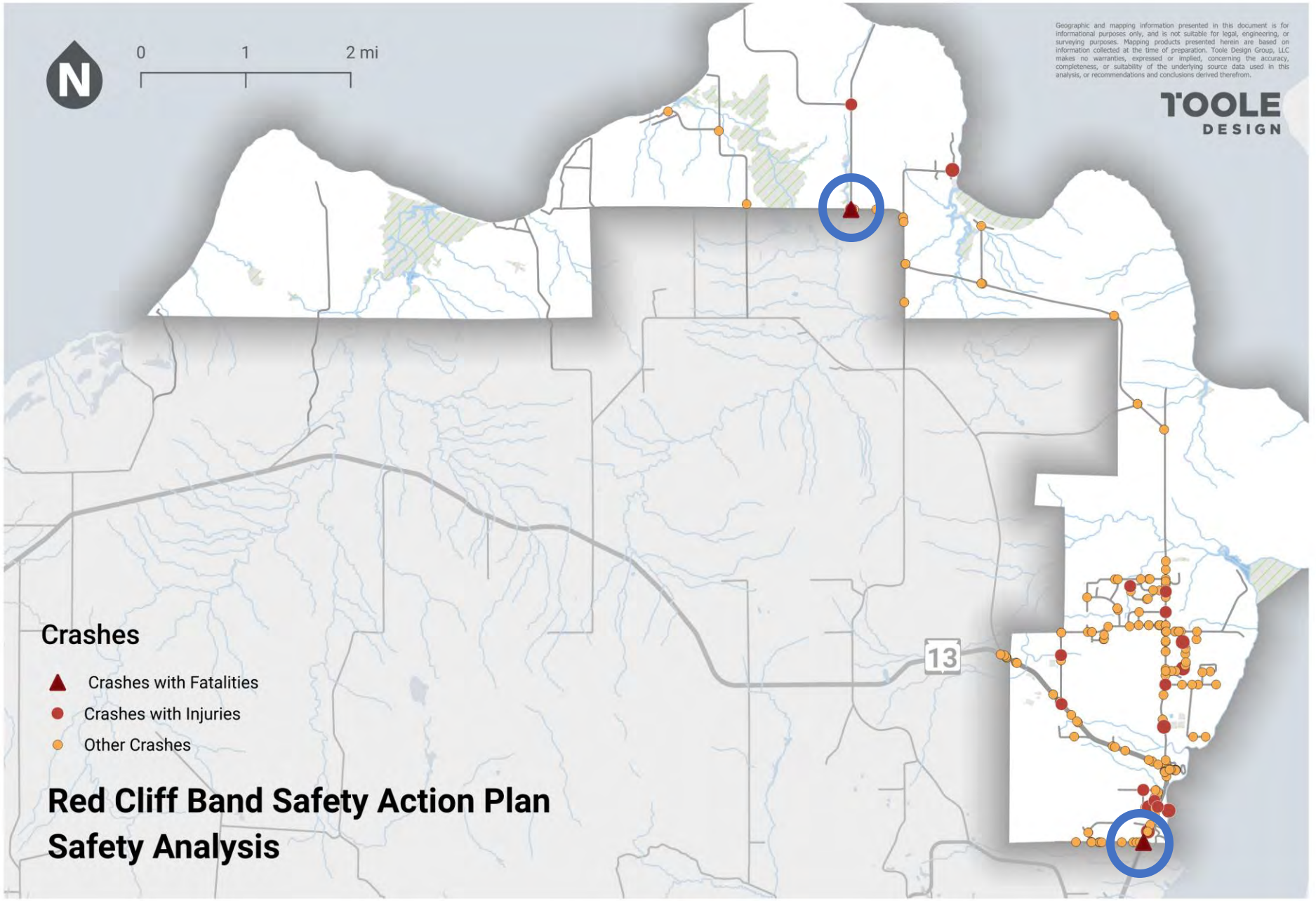
- Who (was affected)?
- What (happened)?
- Where (did the crashes occur)?
- Why (did the crashes happen)? (or, what contributed to the crashes occurring?)
- How (can we fix it)?



Where?

2014-2023 Crash Data

Data from Red Cliff Police Department and WisTransPortal



Where?

Fatal Crash Locations Circled in Blue

Where did the crashes occur?

Fatal Crash Locations

- Highway 13 at Bresette Hill Road – 8/2/2023
  - Police vehicle hit person walking in northbound travel lane
  - Person walking on phone
- North Bradum – 2007
  - Drunk driver hit and run, early morning
  - Person walking
- Blueberry Road Chicago Creek crossing – late 1990s
  - Drunk driver
  - 12-year-old girl walking
- Bishop Lane – late 1990s
  - Drunk driver, night
  - Person walking

Where?

Injury crash locations along Highway 13 circled in yellow

Area of new development without crash history but of concern circled in orange

Where did the crashes occur?

- Injury Crash Locations – South Area
  - Pike Road (Various Locations) (3)
  - 37315 Community Road
  - 37550 Dock Road

Where did the crashes occur?

- Injury Crash Locations – Middle Area
  - New Housing Road (Various Locations) (4)
  - Pageant Road (Unknown Location)
  - Bradum Road at Egizaa Drive
  - Daley Road (Unknown Location)
  - Hillside Drive west of Bear Paw Road

Where did the crashes occur?

- Injury Crash Locations – North/Outer Area
  - Blueberry Road at Eagle Bay Road – 12/29/2014
    - Rollover
  - Eagle Bay Road at Point Detour Drive
  - 94400 Raspberry Shore Drive

Who was affected?

- Limited data available
- 30 fatal or injury crashes in last 10 years
- At least 2 involved someone walking (including one of the fatal crashes)
  - Crashes involving vulnerable road users (people walking, biking, or using personal mobility devices) tend to be more severe than those only involving vehicles

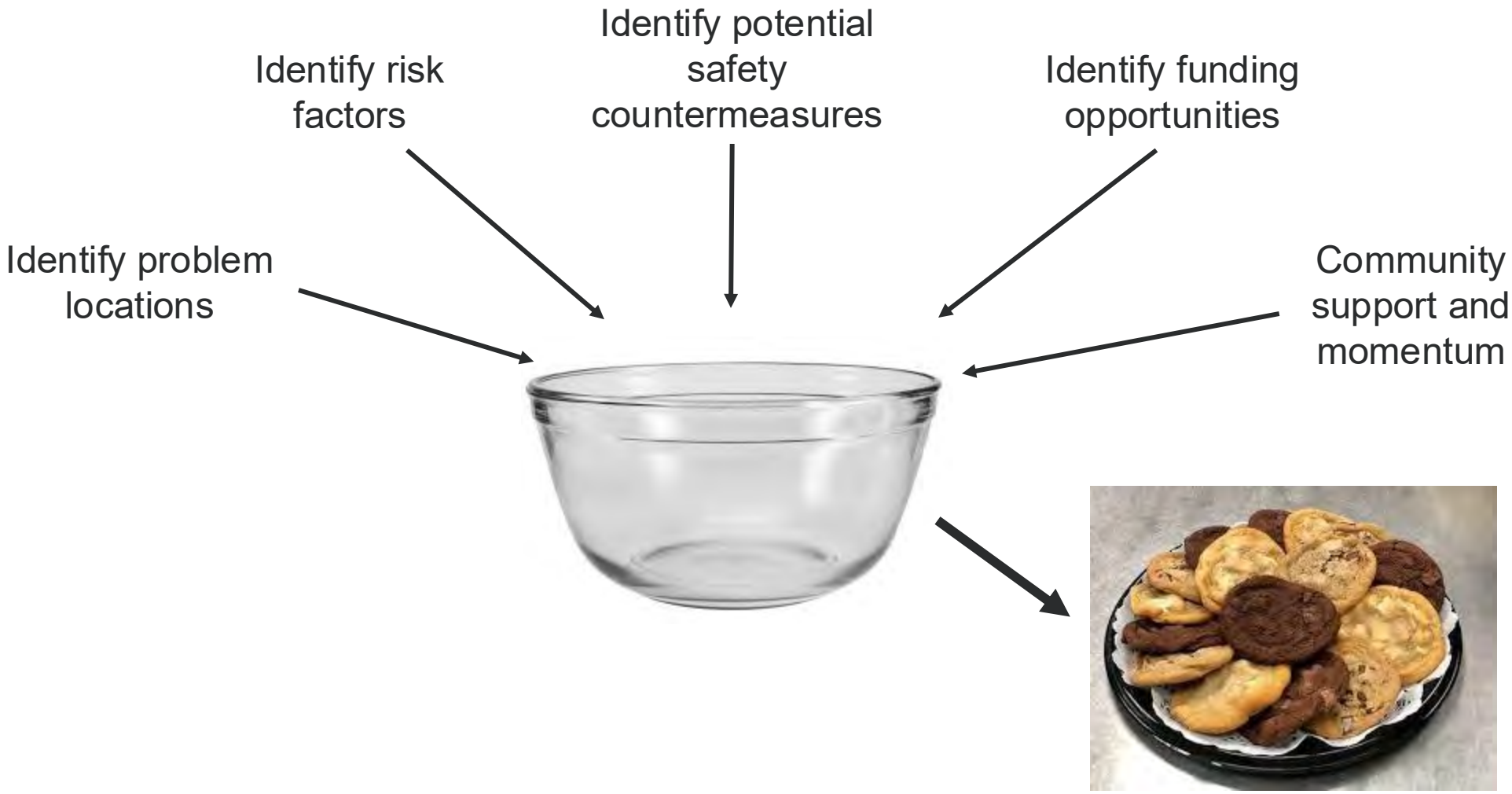
What happened?

- Limited data available
- Most injury crashes involved two parties (not single vehicle run-off-road)
- No injury crashes involved animals
- At least 2 high speed rear ends on Highway 13
- At least one angle ("t-bone") crash (Highway 13 at Pike Road)
- At least one head on crash (Blueberry Road at Bear Paw Road)

Why did the crashes happen?

- Analyzing risk factors
  - Traffic speed?
  - Roadway geometry?
  - Environmental factors?
  - Cultural factors?
  - Lack of facilities for people walking and biking?

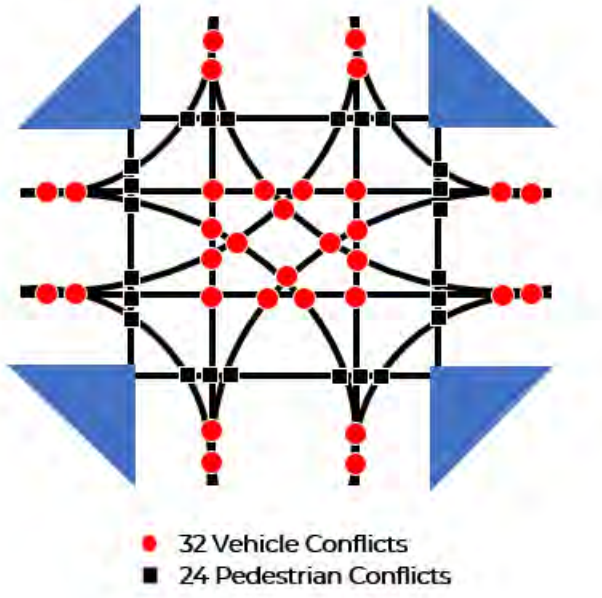
How can we fix it?

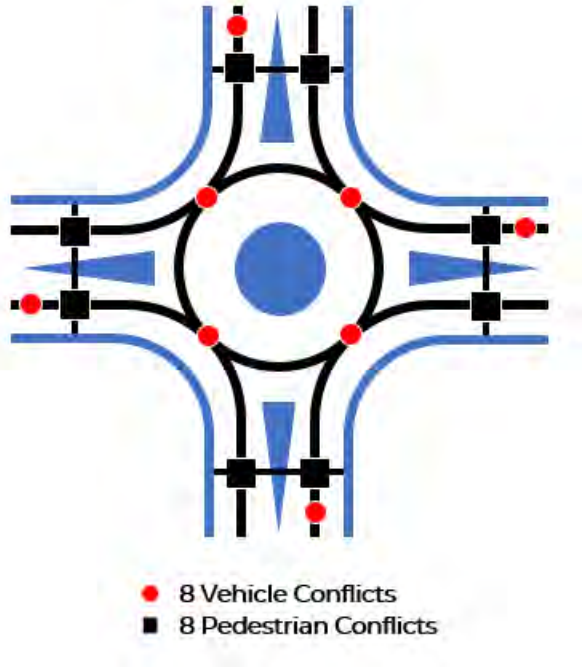


How can we fix it?

- Potential Safety Countermeasures
  - Roundabouts
  - Pedestrian crossing treatments (RRFBs, refuge medians, curb extensions)
  - Add walking/biking facilities
  - Curve warnings (chevrons, guardrails, rumble strips)
- Proactive Thinking
  - Build safety into new projects, policies, etc. rather than waiting for crashes to happen

How Roundabouts Work





A Federal Highway Administration (FHWA) "Proven Safety Counter-Measure"

- 90% reduction in fatal crashes
- 75% reduction in injury crashes
- 30-40% reduction in pedestrian crashes
- 10% reduction in bicycle crashes
- 30-50% increase in traffic capacity

Lummi Nation (WA)

Image credit: Google Earth

The Confederated Tribes of the Chehalis Reservation (WA)

Image credit: The Confederated Tribes of the Chehalis Reservation

Oneida Nation (WI)

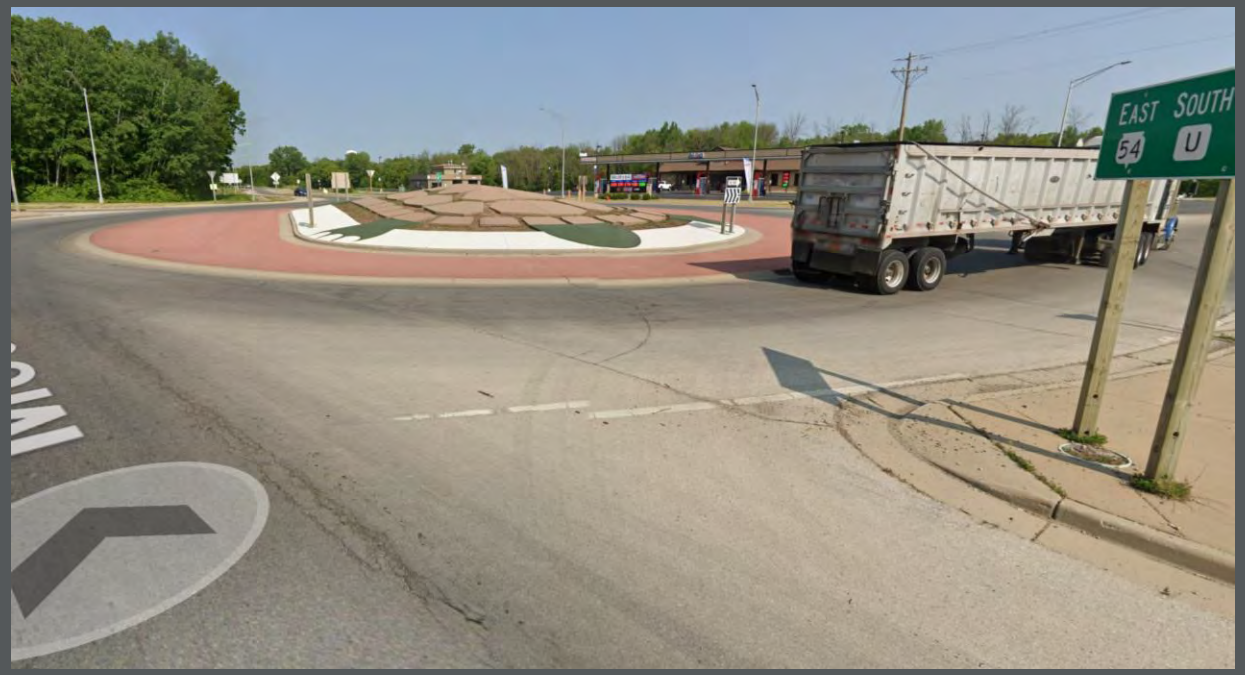
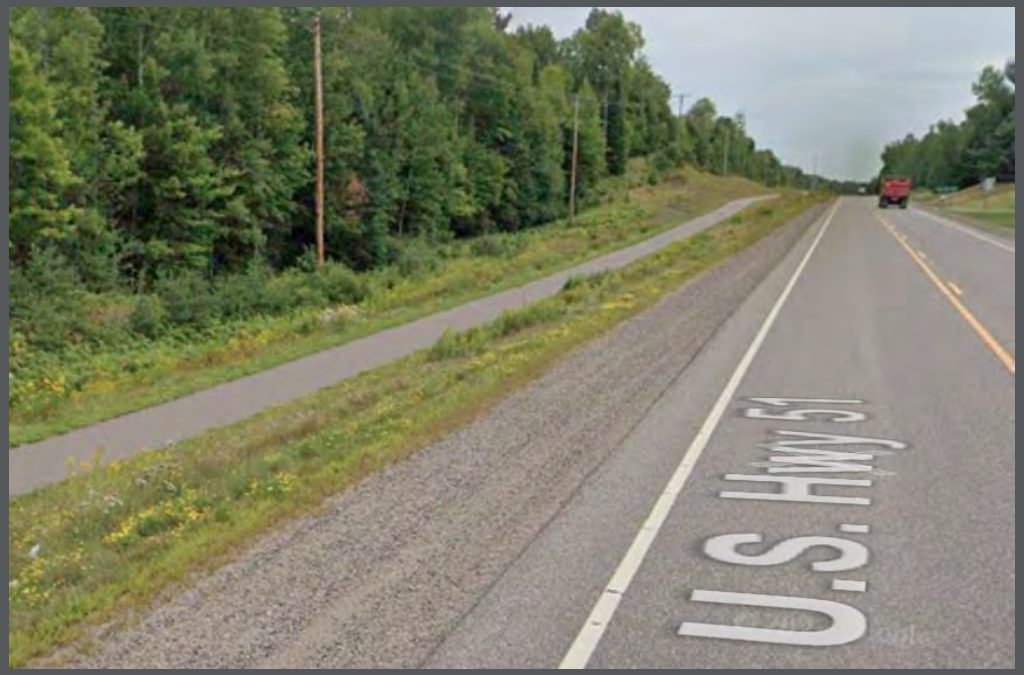


Image credit: Google Earth

Mercer (WI)

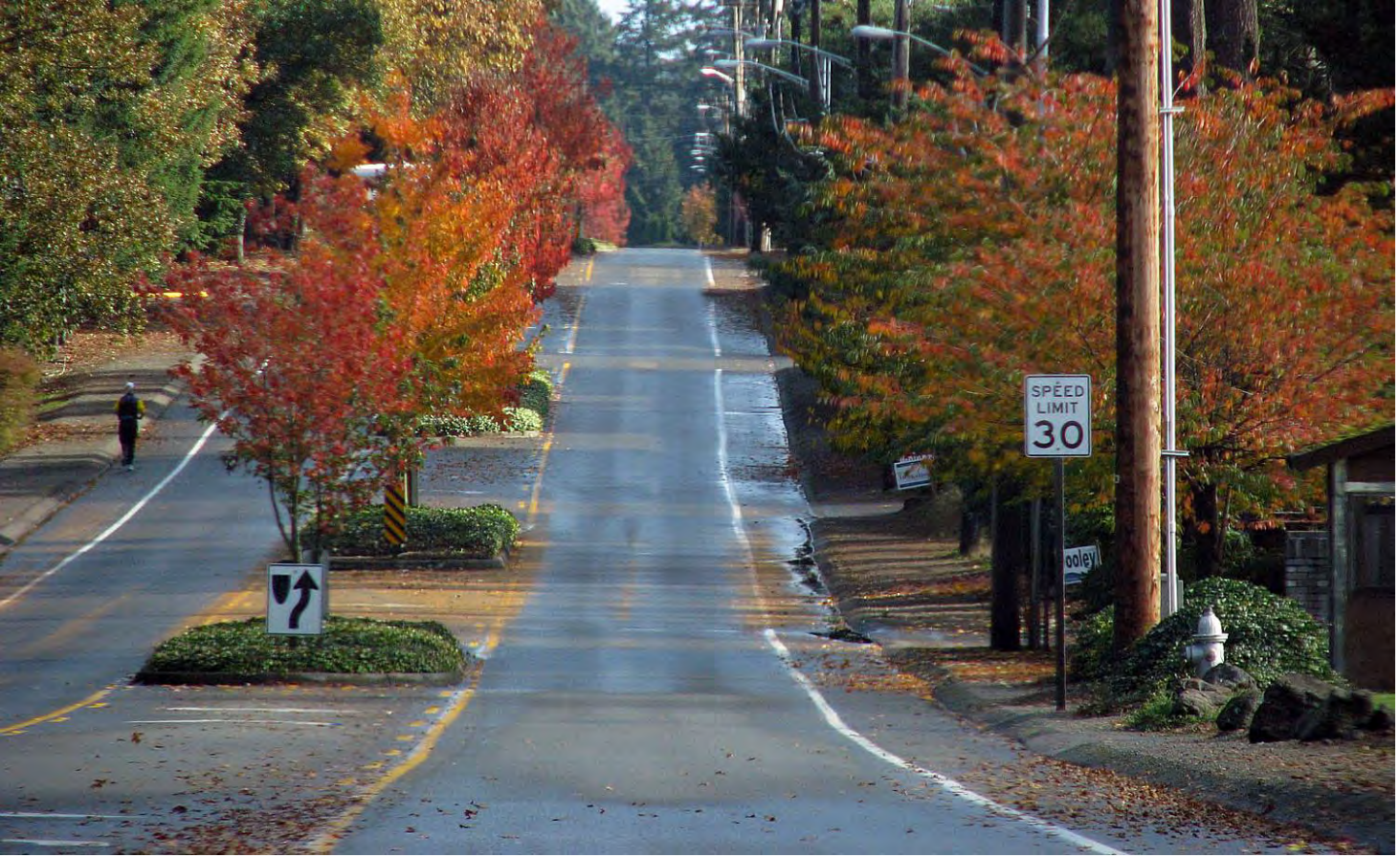



Tischer
Creek

Tualatin, OR Before

After

Pacific Rim Highway, Tofino, BC: **ʔapsc̓iik t̓asi̓i** (pronounced: ups-cheek ta-shee; meaning *going in the right direction on the trail*)


SPEED
LIMIT
30

LET’S TALK:
SMALL GROUPS

What We'll Share & Discuss at Our Tables

- What's your vision for safer roads in Red Cliff?
- What challenges are you observing or experiencing related to road safety?
- Where should we focus first?
- What ideas do you have to address challenge and advance a vision for road safety?

What's Your Vision for Safer Roads?

Write (a word, sentence, poem, song) or draw your vision:

Imagine everyone feels safe, comfortable, and welcome—regardless of age, ability, or mode of travel – on Red Cliff roads.

- What do the roads look like?
- How are people behaving and interacting?
- What do you see? What do you hear?
- How do you envision road safety being built into the design of roads, our shared spaces?

What Challenges are You Observing?

Mark the Map: Draw, write, use post-its to mark the map:

- What do you see as the biggest road safety challenges?
- What specific road safety concerns do you encounter in your daily travels?
- What do you think are the most common risks on the road for drivers, pedestrians, cyclists, and other wheeled users?

Where Should We Focus First?

- In your group, prioritize 3-5 locations (intersections, roads) where you think there is the greatest need to do something first.
- Write on white flip-chart paper
- Make a note on why you choose each location

What Ideas Do You Have?

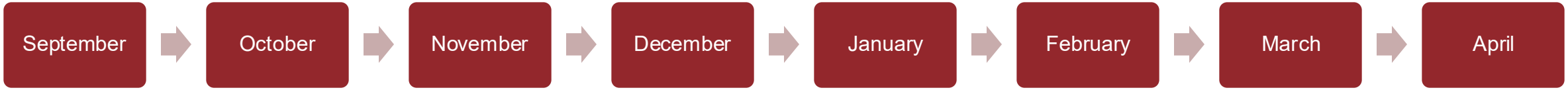
Share and list ideas of possible road safety treatments, tools, actions to address your group's top locations.

- How might Red Cliff ensure roads are safer, more inviting and accessible for all users?
- What would make a road safety vision a reality?

LET’S SHARE: LARGE GROUP

What's Next?

Schedule



Safety Analysis

Engagement and Collaboration

Strategy and Project Selections

Progress and Transparency

Final Plan


Miigwech
Thank you

DAY 3

ROAD SAFETY SUMMIT

Closing with Road Safety Team

Today:

- What we heard & observed
- What priorities & strategies are emerging
- How might we develop a target year to reach zero road deaths and serious injuries
- What are next steps

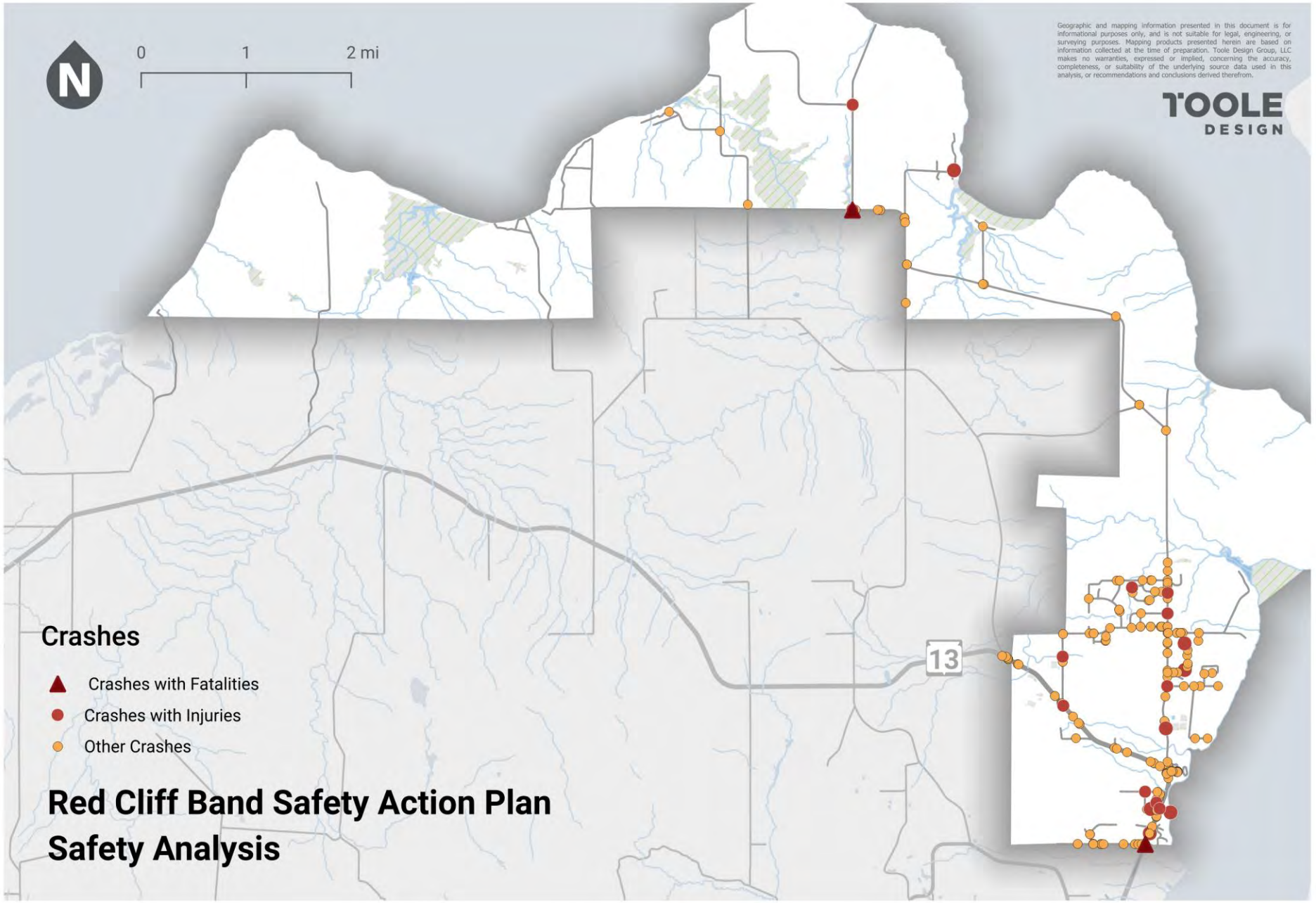

STOP


SPEED
LIMIT
25


STOP

“

Build with purpose, save lives.



Where & Why?

Roadside Observations:

- Traffic speed
- Roadway geometry
- Environmental factors

2014-2023 Crash Data

Data from Red Cliff Police Department and WisTransPortal

Key Themes

- Slow motorists' speeds
- Prioritize people walking
- Address limited or lack of lighting
- Build more sidewalks/trails

Blueberry Rd

Hwy 13 & Bresette Hill Rd

Emerging Priority Locations

- Highway 13
  - Health Clinic intersection
  - Blueberry intersection
  - Pike intersection
  - Trail/sidewalks to health clinic
  - Trail to Bayfield
- Blueberry
  - Separated path/trail

Blueberry Rd


Hwy 13 & Health Clinic/Cultural Center

Emerging Strategies

- Safer intersections by design: Roundabouts
- Safer routes to community destinations: Sidewalks & Trails
- Slow, shared residential/local streets: Traffic Calming
- Supportive local policies:
  - Complete Streets – Pedestrian safety at the forefront of every project
  - Update land use and zoning code to support walkable communities

Let’s Discuss:

What is coming clear to you?

Let’s Discuss:

Goal: Zero road deaths and serious injuries by 20XX

Plan Goal Setting

- Perspective:
  - 4 fatalities between late 1990s and 2023
  - 1 Highway 13 (2023)
  - 1 North Bradum Rd (2007)
  - 2 Blueberry (late 1990s)
  - All fatalities were a person walking
  - In about 26 years that’s a fatality every 6.5 years

Plan Goal Setting

- Perspective:
  - 4 fatalities between late 1990s and 2023
  - 1 Highway 13 (2023)
  - 1 North Bradum Rd (2007)
  - 2 Blueberry (late 1990s)
  - All fatalities were a person walking
  - In about 26 years that's a fatality every 6.5 years

What should our target year be for the plan road safety goal: *Zero road deaths and serious injuries by 20XX?*

How do we best involve Council?

Funding Picture

- SS4A Implementation Grant
  - Up to $25M
  - Multiple projects can be included in package
  - 20% local match

Funding Picture

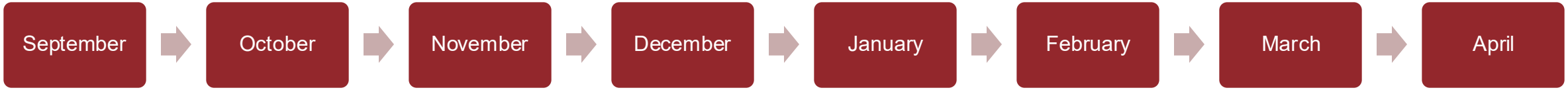
- Highway Safety Improvement Program HSIP (WisDOT)
- Transportation Alternatives Program (TAP) (non-motorized) (WisDOT)
- Tribal Surface Transportation Program (STP) (expires if current 5-year federal funding not renewed)
- DNR
- Scenic Byways (Federal)
- RAISE (Federal)
- Local Road Improvement Program (State)
- BIA

What's Next?

What else is important to consider?

- Keeping partners engaged
- Engaging Council
- Keeping community informed & engaged
- Drafting the Action Plan

Schedule



Safety Analysis

Engagement and Collaboration

Strategy and Project Selections

Progress and Transparency

Final Plan


Miigwech
Thank you

The Project Team, consisting of members of the consultants and Red Cliff Safety Teams, organized and participated in a 3-day Road Safety Summit that involved partners from multiple local agencies and organizations as well as members of the community. The summit was held October 28th-30th, 2024 at Legendary Waters on the Red Cliff Reservation. The first day of the summit consisted of a roundtable discussion with members of local government agencies, followed by a walking audit of areas of concern along State Trunk Highway (STH) 13. The second day, members of the consultant team visited locations throughout the Red Cliff Reservation in the morning to observe and identify areas of concern, document examples of positive improvements, and discuss opportunities and priorities. The afternoon and evening of the second day allowed members of the community to engage with the project team in quality discussions regarding their concerns, needs, and desires surrounding transportation. They provided valuable insight into the lived experiences that often do not show up in data points. The third day, members of the project team met to review the information gathered, discuss their experience, share what they had learned, and prepare for the next steps in the process of creating a Tribal Transportation Safety Plan. The following is an abbreviated sample of notes and observations of discussion during those three days.

MONDAY OCTOBER 28TH – GOVERNMENT ROUNDTABLE & WALKING AUDIT

Attendance:

Name	Organization	Email
Samantha Lorenz	Terra Soma (Consultant Team)	samantha@terrasoma.com
Dean Chamberlain	Toole Design (Consultant Team)	dchamberlain@tooledesign.com
Tracey VonBargen	Widseth (Consultant Team)	Tracey.vonbargen@widseth.com
Eleanor Brandt	Widseth (Consultant Team)	Eleanor.brandt@widseth.com
Morgan Gerk	Red Cliff Public Works (Safety Team)	Morgan.Gerk@redcliff-nsn.gov
Jen Leech	WisDOT	jennifer.leech@dot.wi.gov
Jeff Benton	Red Cliff Public Works (Safety Team)	Jeff.Benton@redcliff-nsn.gov
Terry Newago	Bayfield School District	tnewago@bayfield.k12.wi.us
Pat Daoust	BART	p.daoust@bartbus.com
Frank Lovejoy	Red Cliff Public Works (Safety Team)	Frank.Lovejoy@redcliff-nsn.gov
Brenda Hebert	Red Cliff Public Works (Safety Team)	Brenda.Hebert@redcliff-nsn.gov
Alex Hoogland	Red Cliff Planning	alexander.hoogland@redcliff-nsn.gov
Charles Thannum	WisDOT	charles.thannum@dot.wi.gov
Anne-Marie Coy	Bayfield County Health	annemarie.coy@bayfieldcounty.wi.gov
Beth Paap	Bayfield School District	bpaap@bayfield.k12.wi.us
Jennifer Leask	Red Cliff Early Childhood Center	jennifer.leask@redcliff-nsn.gov
Doug Jennings	Red Cliff Planning	douglas.jennings@redcliff-nsn.gov
Jake Benson	Bayfield County Highway Department	jake.benson@bayfieldcounty.wi.gov

Roundtable – Key Takeaways

- Key need: address STH 13, with Blueberry mentioned as a key route of local concern
- Challenges:
    - Schools encourage walking but there are no sidewalks/visual cues.
    - Coordinating funding efforts & delegating responsibility
    - Maintaining facilities once built
    - Limits to space within ROW for infrastructure & improvements
    - Variety of non-personal vehicle travel (walking, biking, snowmobile, ATV, transit, etc.)
    - Different solutions needed for different areas
    - Large costs and long timeline ($2-3 mil, 5-6 yrs) to roundabout process
- Opportunities
    - Look at examples from other locations/tribes/municipalities for funding/design options (Mercer Trail)
    - Compact roundabouts or traffic circles in neighborhood locations

- 202a Funding – project size considerations
- Other programs/studies: SS4A, TIA (Traffic Impact Assessment), HSIP, TAP
- Timeline for roundabout potentially shorter (3-4 years) if land acquisitions are not needed
- Bus stop improvements, fixed route, potential for short-term improvements

Walking Audit – Key Observations

- New development will be affecting already impacted intersections/areas of concern
- Technical coordination of highway crossing options & opportunities a key factor
- Location 1: STH 13 & Blueberry Rd/Onigamiing Dr (Casino entrance)
  - Issues:
    - Multiple signs
    - Turn alignment
    - Intersection located on a horizontal curve
    - Vertical grades/curvature on STH 13
    - Pending development of west side of intersection with relocated and expanded convenience store/gas station
    - Overly wide travel lanes
    - Faded crosswalk markings
  - Opportunities
    - Take advantage of excess lane width for other things (such as median refuge or crossing island)
    - Utilize different options like raised table crossings/intersection or rumble strips.
    - Considerations for durability, particularly related to plowing
    - Mark high visibility continental-style crosswalk markings
    - Potential for roundabout
- Location 2: STH 13 & Pike Rd
  - Issues:
    - Multiple roads converging at awkward angles
    - High service area – admin building, library, food shelf, etc.
    - High congestion at peak times
    - Pedestrian crossings on state highways have regulations limiting striping
  - Opportunities:
    - Eliminate leg(s) of road to simplify intersection
    - Mark high visibility continental-style crosswalk markings
    - Double sign pedestrian sign posts
    - Additional crossing treatments such as a median refuge island and/or raised table crossing
- Location 3: STH 13 & Aiken Rd (Clinic/Pow wow grounds)
  - Issues
    - High speeds w/no visual cues that say slow down
    - Intersection located on a horizontal curve
    - Lots of new and upcoming development
    - Road crossings need access from crossing to ex connections to clinic (sidewalk)

        - Drainage issues
        - Need to address multi-modal access
        - Lack of sidewalk or shared use path along STH 13 between Blueberry and Aiken Rd
    - Opportunities
        - Use road improvements to improve drainage as well
        - More visual cueing and traffic calming needed as motorists approach developed area
        - Potential to move development closer to road or create a local access road
        - Potential for roundabout
        - Shared use paths/sidewalks
- Discussion
    - Speed reduction is key
    - Focus on pedestrian safety, getting pedestrians off highway
    - Evaluate impacts of current/future development
    - Lots of options/potential
    - Need for funding

TUESDAY OCTOBER 29TH – COMMUNITY ROUNDTABLE & VISIONING

Attendance:

	Name	Where do you live?
2-4PM Roundtable	Jeff Benton (Safety Team)	Red Cliff
	Morgan Gerk (Safety Team)	Herbster
	Frank Lovejoy (Safety Team)	Red Cliff
	Brenda Hebert (Safety Team)	Red Cliff
	Samantha Lorenz (Consultant Team)	Washington State
	Dean Chamberlain (Consultant Team)	Twin Cities, MN
	Tracey VonBargen (Consultant Team)	Alexandria, MN
	Eleanor Brandt (Consultant Team)	Minneapolis, MN
	David Livingston	Red Cliff
	Katrina Gordon	Red Cliff
5-7PM Visioning	Jeff Benton (Safety Team)	Red Cliff
	Morgan Gerk (Safety Team)	Herbster
	Doug Jennings (Safety Team)	Red Cliff
	Samantha Lorenz (Consultant Team)	Washington State
	Dean Chamberlain (Consultant Team)	Twin Cities, MN
	Tracey VonBargen (Consultant Team)	Alexandria, MN
	Eleanor Brandt (Consultant Team)	Minneapolis, MN
	Charmaine Ramirez	Red Cliff
	Josh Ramierz	Red Cliff
	Maxine Babineau	Red Cliff
	Mike Babineau	Red Cliff
	Teresa Hollins	Red Cliff
	Kay Deragan	Red Cliff
	Shyanna Cadotte	Red Cliff
	Rob Czypinski	Red Cliff
	Gavin Wakjer	Red Cliff
	Bradum Duffy	Red Cliff
	Alana Poabenau	Red Cliff
	Eric Gordon	Red Cliff

Summary: Attendance was lower in quantity but the conversations had were of substantive quality. Attendees said a variety of similar things, indicative of shared paint points related to traffic safety concerns. A theme emerged towards the end of the day: “Build with purpose, save lives.”

Community Engagement/Roundtable – Noted comments & observations

- Key Themes:
    - Slow motorists’ speeds
    - Prioritize people walking
    - Address limited or lack of lighting
    - Build more sidewalks/trails
    - Design for a mix of users – people get around outside of personal vehicles using ATVs and snowmobiles
    - Blueberry and STH 13 corridors top priority
- Noted comments & observations by attendees
    - “Blueberry is the main vein” – David
    - Alternatives to traditional concrete sidewalks? Gravel paths installed as a community service project?
    - Need to keep a people-first approach
    - Concerns with animals while walking at night, lighting isn’t great
    - Reflective paint on walkways would be nice
    - Weird angles at pow-wow [ntersection
    - Would be great to have designated turn lanes
    - Lots of kids crossing at Pike intersection
    - Kids like to hang out at dock, Duffy’s in summer (park by dock potentially coming)
    - Has to be something easy to maintain, but also responsibility of people to use things appropriately
    - More people walking than ever
    - Sidewalk needs to go at least to clinic, needs to be lit
    - Can’t just build things, need to think about more of future plans
    - Lots of elders use scooters too
    - Pet peeves
        - At Pike Rd intersection:
            - Busses pulling in/out of intersections, used to be more room there
            - Never know which way people are turning
        - Not all crashes get reported, lack of data
        - No one pays attention to warning signs
    - In general people were in support of roundabouts and curious how they would fit - is there enough room, etc.
    - Like the flashing speed signs
    - Build-out of community is happening faster than road/improvements can catch up to
    - Need to “childproof” (vandalism-resistant) lighting, especially in housing areas

WEDNESDAY OCTOBER 30TH – PROJECT TEAM DE-BRIEF

Members of the project team met to review key take-aways from the first two days of the safety summit, and discuss next steps in the process of compiling a Comprehensive Tribal Transportation Safety Plan.

- Safety Team updates
    - Room for improvements in ROW along Blueberry Rd
        - Pending planned culvert replacement at Chicago Creek to have room
    - Concurrent Scenic Byway grant application through Red Cliff Environmental – opportunity for synergy
    - Additional crash info for Bresette/STH 13, Eagle Bay known crashes
- Consultant Team observations:
    - Positives examples: Sand Bay Rd signage - appropriately spaced, messages build
    - Opportunities
        - Options for preserving rural road character: 10' lane, rumble strip w/white paint
        - Width for wider gravel shoulder on neighborhood streets
        - Local connecting highway designation
        - Temporary/removable plastic bollards
        - Additional improvements with existing pedestrian crossing grant
    - Low hanging fruit (low effort, high impact)
        - Clearing roadside vegetation (may require conversation with residents)
        - Assessing and adjusting/adding signage
    - Potential intermediate action: bump-outs or curb extensions, pedestrian refuges (medians), high visibility crosswalk markings at RRFB locations for added crossing and traffic calming support
- Strategies, Goal Setting
    - Tie TZD goal into implementation funding
        - Suggested to set goal year no more than 10 years, interim 5 year goals
        - Council needs to be involved prior
    - SS4A - no specific project type, advantage to approach that spread improvements over the community as a whole, with a suite of improvements
    - Create toolbox of options for safety improvements
        - Bundle of projects: roundabout(s), Blueberry path, neighborhood roads
        - Phased construction approach – grantors look at capacity
        - Opportunity to fit improvements into existing road improvement cycles
    - Identify partnerships, funding opportunities
        - Matching agency funds, bonding, shovel tax, private (Duluth Superior Board), allocation of existing funding

- Support local policies to create shift in thinking, elevate pedestrian safety to the top (pedestrian facilities cannot continue be first things to be cut)
- Tie into local economics – electric vehicle charging stations, trails; visibility for local businesses
- Ways to engage Tribal Council – working session, quarterly retreat
- Engage with Housing
- Provide ongoing updates to create community support – regular section in newsletter
    - Power of community to influence & pressure agencies at their own turning point
    - Provide additional education around roundabouts
- Additional online/survey engagement – led by Red Cliff

Appendix 2

Equity Analysis

TOOLE DESIGN

212 3RD AVENUE N.
SUITE 352
MINNEAPOLIS, MN 55401

612.584.4094
TOOLEDESIGN.COM

MEMORANDUM

March 14, 2025

To: Tracey Von Bargen
Organization: Widseth
From: Jaz Warren and Dean Chamberlain
Project: Red Cliff Tribal Transportation Safety Action Plan

Re: Task 5 Equity Analysis

CONTENTS

OVERVIEW

This memo explains the process, findings, and recommendations of the Red Cliff Tribal Transportation Safety Action Plan (TSAP) equity analysis. This includes equity definitions, describes the methods used for the equity analysis, lays out historical context and impacts, identifies equity focus areas, and sets the foundation to incorporate equity as an overlay to the recommendations of the TSAP. This memo presents the results of the equity analysis, which includes context to transportation disparities and produces equity maps. Finally, it shares conclusions and recommendations to help guide and create a comprehensive transportation safety system that is grounded in the context of the Red Cliff tribal community and is set up to be equitable and implementable.

Importance of an Equitable Transportation Safety System

Historically, funding, program, and policy structures have disproportionately challenged Black and Indigenous communities. This is largely because these communities have traditionally been systematically excluded from resources and, like most communities, often lack capacity to fund, manage, and maintain transportation, land development, and other related infrastructure and planning needs entirely on their own. Because of structural marginalization, more of the burdens of the transportation system have been placed on specific groups, such as BIPOC, low-income, people with disabilities, youth, elderly, and others. These burdens can include higher exposure to pollution, public health and climate impacts, higher concentrations of traffic crashes, service gaps, inadequate infrastructure, and divisive roadway construction. Further, these groups are more likely to have benefits of the system withheld because of the ongoing effects of past policies and investment patterns, which results in disparate transportation experiences and an inequitable transportation system.

In the 2010 census, 22% of people identifying as American Indian and Alaska Natives lived in reservations, trust lands, or tribal statistical areas (Norris, Vines, & Hoeffel, 2012). Nationally, motor vehicle crashes are the leading cause of unintentional injury for American Indians aged 1 to 44, and their motor vehicle death rate is higher than for any other ethnic or racial group in the United States.[1] 79% of Red Cliff's residents identify as American Indian or Alaska Native.[2] Because the indigenous community is drastically overrepresented in crash data, addressing and enhancing roadway safety is imperative where there are higher populations of Native American residents.

Owning a vehicle and traveling by car can be a stressor or impossible for many people in the community. Transit, walking, bicycling, scootering, and riding ATV's play a vital role in the Red Cliff transportation system by offering increased mobility, independence, and access to opportunity for people without vehicles. People should feel safe and empowered to travel using any mode to access employment, school, grocery shopping, and a variety of other activities to fully participate in society. Connected and accessible multimodal infrastructure for every resident results in better access to daily physical activity and improved quality of life. The Safe Streets for All (SS4A) program provides more communities the ability to expand multimodal service for growing communities, address mobility challenges of marginalized groups, and alleviate the burdens felt by communities across the transportation system. For Red Cliff, it is important to understand the inequities that the whole community is faced with as a tribal nation, but also identify communities within Red Cliff that are further burdened by health and safety disparities, such as older adults, youth, and people with disabilities.

[1] https://www.hhh.umn.edu/news/researchers-tribes-collaborate-advance-roadway-safety-minnesota-reservations
[2] Census

Equity Analysis Framework

Equity Definition and Principles

Equity can be defined in different ways depending on the context, but generally is described as the fair distribution of costs and benefits of an action. Transportation equity more specifically is defined by:

- Compensates for inequities between groups in society.
- Provides greater benefit to those with greater need.
- Recognizes current and past inequities.
- Considers the local demand for resources.
- Equally distributes cost and benefit between those with equal ability and need.
- Ensures everyone has transportation access and options that allow them to participate fully in society.

However, to address the injustices that create inequity, we must operationalize a definition of equity that recognizes the existing disparities and the historical factors that create the current state of our region and transportation systems. **In this analysis, we define equity as understanding and addressing injustices that are rooted in systemic racism and exclusion, with the goal of determining who has been and is being harmed by transportation planning and policy decisions, in what ways these communities have been and continue to be disproportionately harmed, and informing a more equitable built environment for residents of the future and today**.

Approach

We employed a historical and societal-trend informed approach to analyze equity within the Red Cliff Band of Lake Chippewa reservation. Indigenous communities, along with other communities of color, in the greater region have experienced institutionalized violence, displacement, and cultural assault for well over a century. This, paired with an intentional separation of natural and social resources, has resulted in disparities that remain to the present day. Since the Great Recession, smart investments in infrastructure and social programs have decreased unemployment nationwide, but these investments have often excluded native communities, and native unemployment rates have remained in double digits.[3] Transportation systems continue disproportionate burdens to health, safety, and well-being of indigenous communities, particularly marginalized groups within these communities, such as youth, older adults, low-income members, and people with disabilities.

Commented [JW1]: Source

The framework we use in this analysis illustrates the history of structural reproduction of these inequities and helps identify strategies to address them through the safety action planning process (Ingram et al., 2020). To initiate repair and change, we need to acknowledge how the past and current conditions affect current travel patterns and traffic safety. This approach uses a holistic blend of historical and current equity outcomes with a lens of impacts to indigenous communities on the whole, but also the marginalized groups within those communities. The first section focuses on recognition of historical harms impacting Red Cliff community. Then, we explore how those historical harms and the current system today may be impacting Red Cliff residents, particularly those most burdened by transportation issues. We end the memo by identifying priority equity areas within Red Cliff and identify strategies to progress towards and equitable transportation safety system.

INFORMATION GATHERING

Historical racial bias and discrimination has a persistent and harmful impact on tribal and other BIPOC communities. This can be seen in unemployment, poverty, education, and mobility access. Transportation infrastructure investments and policy decisions have compounding and long-lasting implications on community structure, safety, and quality of life (Thomas et al., 2022). The information gathering piece of this analysis includes a historical context, which is important both for honoring the diligent work of past generations of leaders, as well as identify the factors that have created the current transportation system, and explores the impacts that this history has had on indigenous communities, Red Cliff specifically, and priority populations within Red Cliff. This will help explain the gaps in the system and trends in crash data, which will allow us to better address transportation safety issues to create a more equitable system for Red Cliff.

Historical Context

Dominant narratives of U.S. history often leave out the realities that BIPOC communities have faced over decades and centuries. However, these events have social, economic, physical, and emotional effects on contemporary society (Greenwood, 2015). Research indicates that there are significant disparities in wealth accumulation across racial, ethnic, and tribal groups throughout the US (Biu et al., 2021). Many areas have a racialized wealth structure, with white households having the highest median net worth while racial and ethnic groups have less wealth and greater debt. White residents tend to have more representation in decision making bodies, and see significantly higher rates of investment of infrastructure and maintenance, social programs and services, economic development, etc. The disproportionate and inequitable outcomes is exacerbated for other marginalized groups within BIPOC communities that also bear a larger burden of safety and health impacts, such as older adults, youth, low-income households, people with disabilities, etc.

Commented [JW2]: Source

Occupation of Turtle Island

The history of European invasion across the US is a long and violent one. Spanning 400 years, European settlers expanded across the North American region, leading to the displacement, genocide, and forced assimilation of millions of Indigenous people. This was supported by local and federal governments and forces, who were in alignment to eliminate tribes from the land. This colonization project continued into the nineteenth century and was formalized through various treaties and removal policies, strengthened by the Indian Removal Act of 1930, and enforced in large part through the Trail of Tears. These acts leaned on deception, violence, and severing access to resources to force tribal communities further west and into specific regions. Approximately 100,000 native people were displaced between 1830 and 1850 alone following the 1930 Act (Darity et al., 2024).

President Zachary Taylor attempted an order to forcibly remove Ojibwe tribes from Wisconsin to Minnesota territory in 1850. To force the relocation to Minnesota, the government announced that annuity payments previously promised at Madeline Island, Wisconsin would instead be at Sandy Lake, Minnesota. Around 3,000 Ojibwe people made the trek to Sandy Lake in the Fall of 1850 to find that the federal government reneged on their annuity payment promise and did not have any provisions or rations for the Ojibwe travelers, leading to the deaths of hundreds from exposure, famine, and disease. This became known as the Sandy Lake Tragedy, which inspired tribal leaders of four Ojibwe tribes to travel to Washington and demand the removal order be rescinded (PBS Wisconsin).

Anishinaabeg Treaty

Chief Buffalo, Head Chief of the Anishinaabe, and the other leaders were successful in winning the 1854 Treaty, which rescinded the 1830 Indian Removal Order and granted them the right to establish their homelands which they would never be required to leave. This was a vitally important peace treaty won by the Ojibwe chiefs, as paved the way for the People of the Big Water to maintain their tradition, culture, practices, and sovereignty at

what is now Miskwaabikaang.[3] However, while this established reservations for many of the Ojibwe bands, it also required them to cede vast tracts of land to the government. Ojibwe tribes ceded over 22,000 square miles of land in Wisconsin alone and about 14,000 square miles of Lake Superior (pbs).

Like many bands, tribes, and nations across the US, the Ojibwe people faced challenges to their treaty rights over the following 150 years. The State of Wisconsin attempted to control fishing and hunting under state regulation in opposition to the rights granted by the treaty. Federal allotment policies throughout the country greatly reduced tribal landholdings, threatening indigenous rights and sovereignty. The Wisconsin Supreme Court dismissed treaties in 1908, ruling them invalid.

Retaining Sovereignty

The Ojibwe bands would be forced to defend their rights on the land, blocking land grab attempts, until two landmark court rulings in the second half of the 20th century. This was exacerbated by the Dawe's Act of 1887, requiring tribes to divide land into individual plots and participate in agriculture in order to be recognized as citizens. As with many reservations, Red Cliff lost nearly half of its land to county due to this Act. Dawe's was part of a long and extensive series of efforts to force assimilation across native communities, setting requirements and expectations that were often counter to native culture and impossible to meet.[4] The government acquired nearly 90 million acres of tribal land in the US, which was sold to non-native settlers or kept by the government. Once the Citizenship Act passed in 1924, Wisconsin natives automatically became state citizens under the state constitution. However, structural and institutionalized discrimination continued through the 1900's to today.

The 1972 Gurnoe and 1983 Voigt decisions again affirmed the Ojibwe treaty rights. The Red Cliff Band of Lake Superior Chippewa reservation, located along the shores of Lake Superior, spans over 15,000 acres. The tribe only held property rights to slightly more than half, except for some repatriated properties within and outside of the reservation borders[5] until 2022 when the Red Cliff Band won back over 1,500 acres of land that was turned over to Bayfield County in the 1900's. This brings the Gaa-Miskwaabikaang back into full ownership of the tribal lands.

Historical Impacts

Violent and forced displacement, occupation, and assimilation, paired with unjust seizure of economic resources and deceptive policies over centuries has had a lasting effect on native communities (Darity et al., 2024). Many of these communities suffer from disproportionately high health, wellness, safety, access, and economic roadblocks. According to U.S. Census Bureau data, 39.1% of Native American children live in poverty compared to 11.7% of their white counterparts.[1] In Red Cliff 32.6% of persons are below the poverty line (44% of children and 11% of older adults), compared to Bayfield County's 9% (12% of children and 5% of older adults).Tribal communities are more likely to be low-income, transit dependent, have higher rates of zero vehicle households, and experience significant transportation challenges compared to other groups in the U.S. context (Ndembe et al., 2021). For more than a decade, the proportion of American Indians and Alaskan Natives killed in motor vehicle–related crashes (per population of 100,000) has been much higher than that of other ethnic groups in the United States. These disparities exist due to a lack of programs, education, and resources that have historically been made available for white and affluent communities. This section outlines the impacts of these disparities to the transportation safety system, and outlines ways in which we can use this plan to address them.

[3] https://www.redcliff-nsn.gov/community/heritage_and_culture/miskwaabekong_history.php

[4] https://www.archives.gov/milestone-documents/dawes-act

[5] https://pbswisconsin.org/news-item/how-ojibwe-tribes-in-wisconsin-resisted-efforts-to-deny-treaty-rights/#:~:text=Forced%20removal%20and%20'Wisconsin%20Death,to%20rescind%20the%20removal%20order.

Roadways

In the absence of programs to provide more equitable access to transportation, an overwhelming focus has been put on automobile-oriented transportation investments in many suburban and rural parts of the country, which is a significant contributor to inequitable transportation outcomes. In addition to the focus on vehicle-related projects over other modes, contemporary planning frameworks that evaluate system performance are often based on how quickly vehicles can travel from point A to point B, with little regard for other factors, such as safety, health, and displacement effects.

Further, roadway projects have long been strategically implemented in a way that divides well-established and growing BIPOC communities, created transportation barriers, increased serious crashes, and led to higher concentrations of pollution. These impacts were largely targeted towards Black, Indigenous, and low-income communities through adopted plans and policies. For generations these outcomes have severely impacted disparities in health, homeownership, wealth, and access to jobs, education, and medical services. Further harm can be avoided and past harms potentially corrected if we identify the corridors that are perpetuating these harms and properly assess future roadway projects to fully understand their impact, particularly to marginalized groups within the community.

The two primary roadways that serve the Red Cliff Band reservation is Highway 13 and Blueberry Road. About 20% of crashes on these roads lead to fatalities, compared to the 3% for all reservation roadways[6] and __% on all Bayfield County roads. Improved pedestrian crossing, safe spaces for ATVs to travel and cross, multimodal connectivity, intersection consolidation, stormwater management, clear zones, site distances, and vehicle turning management were identifies as safety issues along these corridors and intersections.

Commented [JW3]: From a study; update numbers

Commented [JW4]: Source

Vulnerable Road Users

Providing safe, comfortable, and accessible streets and public spaces for all modes of travel and for people of all ages and abilities is fundamental to achieving a safe transportation system. Car ownership is a burden and/or inaccessible to many people. This means that we need to think outside of vehicular transportation when planning and designing the future transportation system. Multimodal street design requires an understanding of all road users, their needs, and a goal of striking a balance that prioritizes safety, comfort, and accessibility. The transportation system must achieve this for pedestrians, transit riders, bicyclists, micromobility users, ATV users, and vehicle drivers alike.

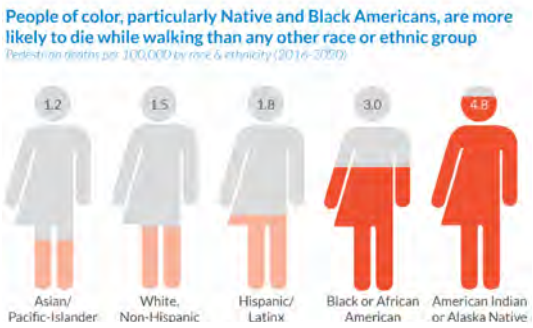


Figure 1: Pedestrian deaths in the United States by race and ethnicity (Fatality Analysis Reporting System (FARS) data, 2016-2020)

Active Transportation

Active transportation investments enable safer and more comfortable experiences for people walking, biking, or taking transit. However, active transportation planning has also fueled disparities. Crash analyses have found that American Indian and Alaska Native (AIAN),

[6] Statewide Tribal Transportation Safety Plan

Black, and Latinx Americans face higher rates of traffic injuries and fatalities[7,8] (Figure 1), particularly pronounced for pedestrians[9,10]. Marginalized groups, such as youth, older adults, and people with disabilities, are more likely to rely on walking and bicycling for transportation and are less likely to have access to safe transportation options due to affordability and/or accessibility issues, leading to disproportionate safety impacts.

The trail and sidewalk networks in Red Cliff are limited to a segment of Highway 13 and hiking trails within Fog Bay Tribal National Park. This means that people who rely on walking and bicycling do not have a safe transportation option when traveling around the reservation to their regular destinations, and face a barrier to safely traveling to Bayfield. Red Cliff has a large youth population; 29% of Red Cliff residents are under 18, compared to the 17% of the Bayfield County population.[11,12] Youth that live in limited or no vehicle households, are not able to rely on rides or choose independent transportation do not currently have safe options to travel around the community. There is no sidewalk or trail network to connect them to their regular destinations, such as the library and educational programs, clubs, shorefront and outdoor recreation areas, cultural camps and campgrounds, etc., and have limited access to safe active transportation routes to the school or bus. In addition to safety, walking and bicycling also has benefits to physical health, mental wellbeing, and reduced exposure to pollution.[13]

Community Transportation

Reliable transit is associated with increased access to healthcare services and healthy food[14], as well as access to jobs and education. Conversely, when people are unable to depend on public transportation or transportation services, they are more likely to forego accessing necessary destinations, including health services.[15] This is particularly problematic for older adults and people with disabilities, who may not be able to use active transportation as an alternative. This can have impacts that would not be reflected in safety data to physical health if residents are not able to access health services, but also mental health if residents are not able to regularly socialize or visit places in the community. Historically, the shift in focus toward developing automobile infrastructure, most notably the interstate highway system, came at the expense of funding for public transportation, widening access disparities between those that had access to private vehicles and those that did not.[16]

Red Cliff currently has a network of transportation programs to assist residents in accessing services and destinations. This network includes:[17,18]

- Community Health Transportation: limited transportation to and from the clinic within a fifty-mile radius.
- Coordinated Services Team (CST): assists families and youth that have specific needs.
- Elderly Transportation Program: provided by the Red Cliff Elderly Services Program, prioritizes older adults with the greatest economic and social need and focuses on preventing social isolation. This

[7] Governors Highway Safety Association. (2021). An Analysis of Traffic Fatalities by Race and Ethnicity.
[8] Nauman, Rebecca B. and Laurie F. (2013). Motor Vehicle Traffic-Related Pedestrian Deaths — United States, 2001–2010. *MMWR Morbidity and Mortality Weekly Report*, 62(15):277-282.
[9] Lucas, K. (2012). Transport and social exclusion: Where are we now? *Transport Policy*, 20, 105–113.
[10] Roll, Josh. (January 19, 2021). Analysis of Pedestrian Injury, Built Environment, Travel Activity, and Social Equity: Pedestrian and Social Equity in Oregon.
[11] Red Cliff Reservation - Profile data - Census Reporter
[12] Bayfield County, WI - Profile data - Census Reporter
[13] https://pmc.ncbi.nlm.nih.gov/articles/PMC7460170/
[14] Litman, Todd. (2022). Evaluating Public Transit Benefits and Costs. Victoria Transport Policy Institute.
[15] Farhang, Lili and R. Bhatia. (2005). Transportation for Health. *Race Poverty, & the Environment*.
[16] Sheller, Mimi. (2018). *Mobility Justice: The Politics of Movement in an Age of Extremes*. Verso.
[17] https://www.redcliff-nsn.gov/community/resources/transportation_babaamaadizi/index.php
[18] https://www.redcliff-nsn.gov/divisions___services/education/early_childhood_center_(ecc)/transportation.php

service provides transportation for group shopping errands, social and educational events, nursing home visits, and medical appointments (if absolutely necessary).

- Miskwaabekong Transit: door-to-door bus service that operates on demand Monday-Friday (6:00AM to 8:00PM) and Saturday (8:00AM to 4:30PM), except for federal and tribal holidays. The system offers specialized service for senior riders, riders with disabilities, and youth. It is a relatively cheap service that also provides connections to the Bay Area Rural Transit (BART) system.
- Early Childhood Center (ECC): transportation for children attending Head Start.

These services effectively target groups that tend to be most impacted by transportation system safety and access issues. It will be important to understand what gaps remain to determine what and how services can be expanded or improved. This can be done by collecting and evaluating crash data and conducting engagement in the community to learn where key populations are unable to rely on these services to access their needs.

ATVs and Snowmobiles

Operators of all-terrain vehicles (ATVs) and snowmobiles are also considered vulnerable road users. This is a commonly used mode of transportation in rural areas where there is less traffic and roadways tend to be more accommodating for ATV use, as it is more affordable and maintainable than vehicle ownership. While ATVs and snowmobiles increase mobility for people who may otherwise not be able to access their daily destinations, they still present a variety of roadway safety complications. Over half of all ATV-related fatalities occur on roadways and injury crashes tend to be more serious than off-road injuries.[19] Likely due to the nature of ATV's and snowmobiles being outside of the classification of a vehicle, but also not in the category of active transportation or micromobility, there is a general lack of rules, regulation, and enforcement specific to the use of these devices.

Many ATV drivers use the vehicles for recreation and enjoyment, rather than a mode of transportation. Observers report reckless driving by people on ATVs on reservations. This could be contributing to the number of crashes that involved impaired driving. There is a gap in research and documenting of ATV traffic safety and crash data, so it is difficult to identify specifically what role ATV use plays in transportation safety at this time. Regardless, there is enough data to show that people are using ATVs for mobility and there are themes showing up in the crash data involving ATVs that we can respond to. The data indicates that 42% of ATV roadway deaths occur on paved surfaces and that these crashes tend to involve males, youth, passengers, and collision with other vehicles. Studies also find more cases of alcohol use, driving without a helmet, and head injuries in these crash types.

The Statewide Tribal Transportation Safety Plan identified the following safety concerns for ATV use on the Red Cliff Band of Lake Superior Chippewa reservation:[20]

- Lack of continuity and connectivity for ATVs
- ATVs using and crossing the roadway
- Responsible ATV usage on roadways

ATV use requires a permit on the reservation, which meets the requirements of the state of Wisconsin. This is a mode of transportation that has potential to greatly increase mobility and access for many households, particularly for youth meeting the age requirement of (16 without a guardian and 12 with a guardian), but use of ATVs must be carefully considered in transportation safety design and planning.

[19] All-terrain vehicle fatalities on paved roads, unpaved roads, and off-road: Evidence for informed roadway safety warnings and legislation - PubMed

[20] Statewide Tribal Transportation Safety Plan

Crash Trends

Motor vehicle-related crash fatalities are significantly higher per capita amongst American Indian and Alaskan Native populations than any other ethnic group in the US. On average, approximately 535 Native American and Alaska Native fatalities are attributed to motor-vehicle related crashes each year (Federal Highway Administration, 2018). Nationally, motor vehicle crashes are the leading cause of unintentional injury for American Indians aged 1 to 44 (Raynault, Crowe, & Ngo, 2010). Between 2009 and 2014 fatalities on tribal lands decreased by 11%, compared to the 1.7% decrease nationally. Though the gap is decreasing, the number of crashes, including injury and fatality crashes, is unacceptably and disproportionate high among native communities. This is even more serious issue when considering that many crashes are not reported. This can be due to a variety of reasons (adrenaline in the moment confusing seriousness of injury, fear of legal repercussion, hit and run, etc.), but implies that the impacts of crashes are more significant than we can see via available data.

Due in part to systemic challenges and barriers, tribal governments have historically struggled to collect consistent, reliable, and thorough crash data. This makes it challenging to observe and understand the crash trends that exist within the reservation. To fill gaps in the data that is available, we must look at crash trends and crash studies that might inform the trends we would expect to see in the Red Cliff community. Crash studies show that the four most common factors associated with traffic fatalities amongst people that identify as American Indian or Alaskan Native are: improper seatbelt or child restrain use (47%), alcohol-impaired driving (42%), speeding (33%), and crashes involving a pedestrian (19%).[21] This study lists the following possible explanations for high crash rates in native communities:[22]

- **Roadway Design and Maintenance:** inadequate lighting and signage, poor roadway and intersection design, and lack of resources to make necessary roadway repairs, clear snow, remove ice, and manage vegetation for visibility.
- **Individual Behaviors:** driving while impaired, inadequate individual restrain use while driving, riding in truck beds, and speeding.
- **Systemic Issues:** poverty, isolation, and lack of services that lead to impaired driving, cause a lack of traffic law enforcement and road maintenance, and present barriers to accessing medical services and safe vehicles. This includes jurisdictional boundary disputes and alcohol sale policies that may contribute to roadway maintenance issues and impaired driving respectively.
- **Decision Makers:** Tribal leaders consistently express constraints in staffing level, training and expertise, and funding as issues to improving

Figure 2: Frequency of Tribal Governments' Self-Identified Roadway Safety Priorities

[21] HHH: Roadway safety in American Indian reservations.pdf - Google Drive
[22] HHH: Roadway safety in American Indian reservations.pdf - Google Drive

roadway safety. Because of the nuance of crash trends and interconnectedness of roadway networks, transportation safety requires a level of inter-jurisdictional coordination, cooperation, and collaboration, which is often lacking between tribal and non-tribal stakeholders.

The primary takeaways from regional crash studies and local crash data emphasize the need for focused pedestrian improvement efforts, addressing systemic issues that have wide-ranging impacts, policy and program focused safety interventions, improved data collection and analysis methods (including crash data and engagement), sustained resources for quality roadway design and maintenance, and better cooperation between tribal and local, state, and federal agencies in a way that respects tribal sovereignty.

Climate Resilience

Climate and transportation equity are closely tied in a variety of ways. As extreme weather events increase, risk to transportation infrastructure and transportation users increase. Replacement, repairs, and regular maintenance needs for infrastructure will continue to increase. Damage and maintenance issues to infrastructure can disrupt users by causing safety and convenience issues. Transportation users will not only be impacted by damage to the infrastructure, but also directly by climate events. This is particularly true for bicyclists, transit users, and especially pedestrians, the most vulnerable user of the transportation system. These also happen to be the modes of transit that underrepresented groups rely on more than their represented counterparts.

Infrastructure funding, reducing climate impacts, and combating climate-change contributors in all communities is vital for the future transportation networks. Implementing climate strategies, such as green infrastructure, shelters, and street trees, green stormwater infrastructure, and improved roadway maintenance will mitigate climate impacts, such as stormwater and drainage issues, extreme heat, and snow and precipitation which often act as safety barriers for transportation users.

RED CLIFF EQUITY FOCUS AREAS

The Red Cliff community today has maintained a strong sense of culture and identity, autonomy and sovereignty, economic viability, and recreational and environmental opportunities. The Tribe is the largest employer in Bayfield County and the first to steward of a tribal national park in the US. As of December 28th, 2021, the Red Cliff Enrollment Department indicates there are 7,636 enrolled members, with 1,785 (23%) living on or near the reservation in Bayfield County and an average of 200 members enrolling per year from 2010-2019.

Leaders have established a “self-determined vision for growth” through which the vision for transportation has been instituted to maintain good roadways for safety and security of members while ensuring minimal impact to land for future generations. Meeting the needs of all community members is an embraced goal of the Transportation Plan. This section identifies equity focus areas within the Red Cliff Band reservation that reflect disparities in the community, where members are more likely to suffer higher burdens of the transportation system. This will be an important piece in creating advancing equity in the transportation safety system as Red Cliff continues to grow

Priority Populations and Locations

Mapping can be used to identify demographic, crash, and trip patterns, which can then be used to help prioritize locations for safety improvements. Typically, this would involve comparing locations across the area that have heightened sociodemographic vulnerabilities (populations are more likely to face transportation disadvantage) with the safety risk throughout the region using the available Census and American Community Survey (ACS) data. In this case, we are unable to identify where there are concentrations of people with vulnerabilities due to data limitations as the entire study area falls within one census block. We also have limited details in crash data details and are unable to determine what crashes involve individuals of vulnerable populations.

Due to these limitations, we will rely on mapping of target destinations to inform priority equity areas. This section describes the vulnerable populations identified for the Red Cliff community and the destinations that are priorities for these populations. Addressing equity gaps and implementing strategies to prevent future disparities is particularly important now at a time when the community is moving forward with visions of growth and development to ensure the future systems meet the needs of all members. Routes to these destinations should be prioritized for equitable safety improvements to ensure that the most marginalized groups in the community have safe routes to travel around Red Cliff.

Priority Populations

As part of the planning processes and in collaboration with Red Cliff tribal leaders and community members, this equity analysis has identified key populations as that are more at risk to face transportation and socioeconomic disparities. Because the negative impacts of the transportation system can be compounded for groups that represent more than one category of vulnerability, this analysis has established high priority populations, whose needs should be more heavily weighed, focusing transportation investment on the routes that facilitate the travel to their priority destinations. Table 1 lists the key and priority populations, and the percentage represented in the population of Red Cliff.[23]

Priority Populations

- Older adults 65+ years of age
- Youth under 18 years of age
- Households with disabilities
- Single parent households

High Priority Populations

- Youth in poverty
- Older adults living alone

Note that 20% of children, 28% of people 65-74 years old, and 81% of people over the age of 75 have a disability, making up roughly half of the people with disabilities in Red Cliff.

Table 1: Priority and High Priority Populations

Population	Demographic Category	Percentage of Red Cliff Population
Priority Populations	Older Adults (65+)	16%
	Youth (under 18)	28%
	Carless Households	8%
	Households with Disabilities	21%
High Priority Populations	Youth in Poverty	44% (of youth)
	Older Adults Living Alone	12% (of older adutls)

[23] Red Cliff Reservation and Off-Reservation Trust Land, WI - Census Bureau Profile

Priority Equity Destinations and Routes

This equity analysis highlights destinations that are important places for previously outlined key populations. These are locations that youth and older adults would need to or choose to visit on a regular basis. As such, locations should have safe multimodal routes for these groups to travel to visit these locations. These routes are identified as priority equity routes for priority safety improvements. This includes Highway 13, Blueberry Road, and New Housing Road.

For youth, this primarily includes recreational spaces, places to socialize, and educational facilities. For older adults, this also includes social and recreational places, community spaces, supported housing, as well as shopping and health and other services. It is important to note that we do not have the data to know where these populations are traveling from. Additional data, engagement, and documentation will be needed to facilitate complete safe trips for youth and older adults to the priority destinations.

Youth Destinations:

- Boys and Girls Club
- Red Cliff Head Start
- Red Cliff Dock
- Duffy's
- Bayfield School
- Pow Wow Grounds and Library

Older Adults

- Grocery
- Tribal offices
- Pow-Wow Grounds
- Red Cliff Elderly Housing
- Health Centers and Clinics
- Casino Community Meeting Space
- Senior housing and assisted living

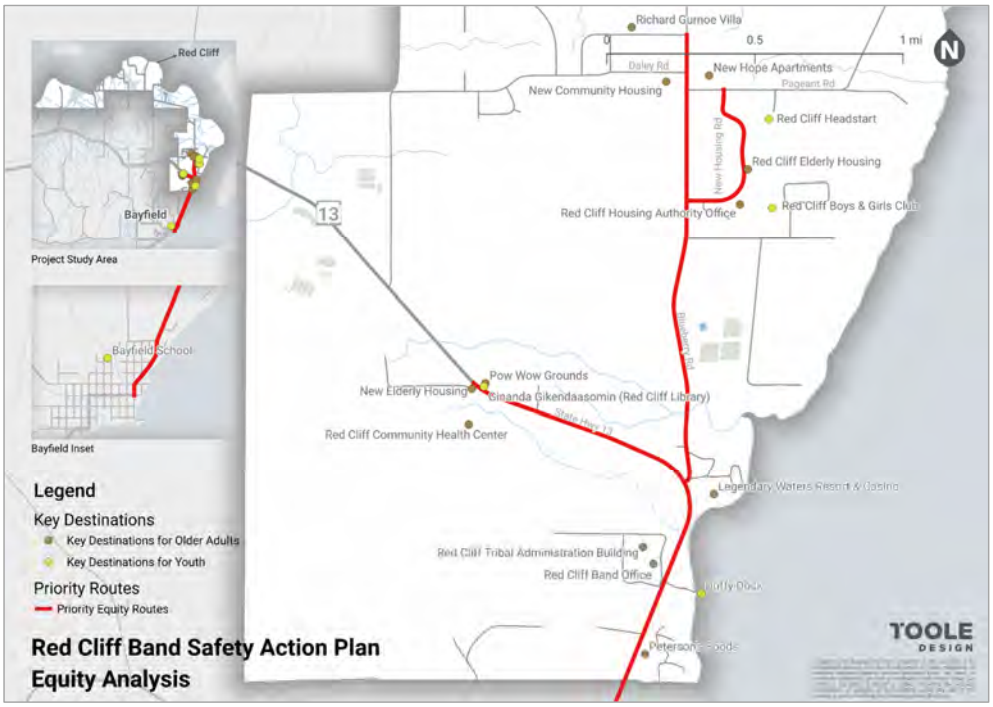


Figure 3: Red Cliff TSAP - Priority Destinations

Commented [JW5]: Map needs road and location labels and possibly parcels turned on

INTEGRATING EQUITY

This section explores how to integrate historical context and impacts, and equity focus areas into the TSAP to advance equity in the transportation safety system by building off the existing practices that Red Cliff has in place, recommendations from previous plans, and findings from other studies. This section lists the recommended strategies for equitably developing a safe transportation system, centering the key populations identified in the previous section.

Improve Data Collection Methods and Tracking

Data collection and tracking is imperative to understanding safety and equity gaps and measuring the success improvements and interventions. This analysis was assembled with minimal data available and the success of the recommendations in this analysis, as well, as the larger plan, will rely on improved data collection methods and tracking. This will help to study the effectiveness of roadway safety improvement interventions, develop qualitative approaches to roadway safety, expand research on emergency management systems (EMS) and effectiveness of enforcement, and close the disparity gaps in the transportation safety system.

- Crashes data: understand who is involved in crashes and what types of crashes and crash locations frequently involve vulnerable road users.
- Demographics: identify where priority populations are concentrated.
- Underreporting: identify what groups are underreporting crashes.
- Data collaboration: share data with non-tribal agencies in order to work together to identify safety issues for priority populations outside of the reservation.

Center Community Voices

To see the current picture of transportation disparities, it is important to also hear about people's current lived experiences. These stories can connect the dots between data and historical analyses to help to define transportation disadvantage, identify areas of safety risk, highlight barriers to access and mobility, and establish the existing conditions and context. People who are most impacted by a project historically do not get the opportunity to express their opinions, provide feedback, or assist in decision-making, which has created gaps in our transportation safety networks.

Conducting equitable engagement invites people to reflect on their lived experiences and consider how their safety, access, and mobility could be improved. To reach priority populations, making engagement accessible and comfortable will facilitate the most effective and productive conversations and participation. This can include pop-ups at daily destinations and community events, one-one-one conversations, hosting focus groups, providing transit or going to community members, providing childcare and food, etc. Consider developing engagement strategies to accomplish the following:

- Find out if existing programs, such as the community transportation services, are working for priority populations and how they can be improved.
- Understand the safety issues that priority populations encounter.
- Confirm the priority destinations identified in this equity analysis and discover other destinations that priority populations visit.
- Track what programs and roadway improvements are successful as they are implemented.
- Identify near miss and unreported crashes to expand road safety findings not included in crash data, particularly amongst priority populations.
- Understand what programs and services would be most helpful to priority populations to improve their feeling of safety.

Emphasize Multimodal Travel

Transportation is a key element of people's daily lives that not only allows them to access their day-to-day needs and activities, but also serves as a place for the community to gather and interact socially. Policies and practices have historically made mobility more difficult for those that rely on modes of transportation outside of the standard motor vehicle. Walking, bicycling, and scooting are the most accessible to youth. Engagement revealed that many older adults in Red Cliff also rely on scooters to get around. Folks use ATVs and snowmobiles to get around and others rely on community transportation programs. These are all modes that can be more accessible and attainable for priority populations than driving in a car, but also present higher crash risk and more safety issues.

To create a safe and equitable transportation system, Red Cliff leaders should encourage the use of multimodal transportation through strategies that facilitate safe use of these modes and facilitate of multimodal culture. Education and enforcement for motor vehicle users around safe multimodal travel and sharing the road with other modes is just as important as education and enforcement for the users of these devices. This can look like educational campaigns, multimodal celebratory days (e.g., bike to school day), expanding transportation services, etc.

Embrace Diverse Safety Strategies

Because of the nuances of the transportation safety system and specific needs of different individuals, it is important to employ diverse methods to improve safety for all users and achieve an equitable transportation network. These methods should address both individual behavior and systemic issues present in the transportation system that lead to speeding, impaired driving, lack of seatbelt use, and other safety problems. Alternatively, penalties for minor infractions can be an undue burden for priority populations. This should be considered in traffic law enforcement. Diverse safety strategies can and should include:

- Design: Infrastructure investment, signage, and operations and maintenance to accommodate all modes of travel.
- Crash and injury prevention programs and public health campaigns.
- Enforcement for all motorized vehicles, including ATV and snowmobile users.
- Education for safe roadway use for users of all modes.
- Payment plans or educational alternatives to fees/fines for minor traffic violations.

Prioritize Equity Focus Areas

Safety investments that will help to address safety disparities and disproportionate impacts should be prioritized. This includes projects that will reduce safety risk, remove barriers to access and mobility, facilitate safe multimodal travel particularly for priority populations. For this reason, Red Cliff should center safety improvements along priority routes, primarily segments that facilitate travel for priority populations to priority equity destinations to help create an equitable transportation system.